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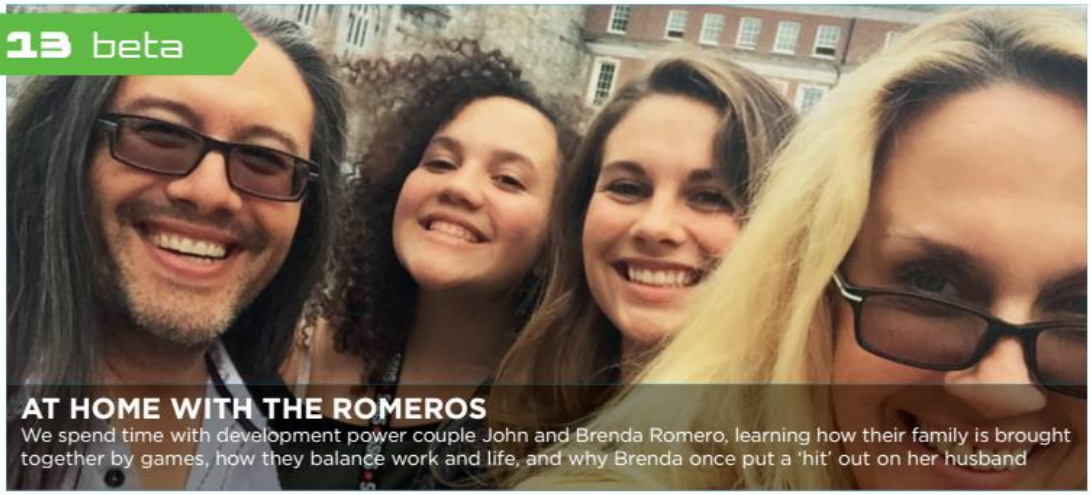

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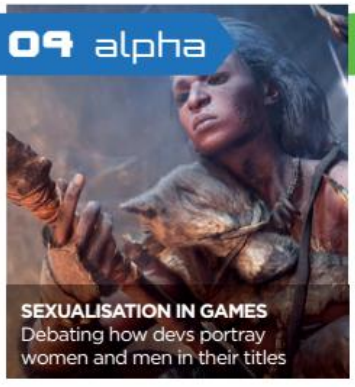

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Editorial

WE NEED TO TALK

Turn the page and you'll find an analysis of the debated sexualisation of characters in games – a recurring topic in this industry.

At first read, it probably looks like I have purposefully targeted female opinions. But this simply isn't the case.

Gathering comment for this feature was surprisingly tough. I contacted not just individual men and women but entire studios – particularly those doing a commendable job of portraying strong female characters. And yet very few were willing to weigh in on the debate, even with the offer of anonymity.

The reasons for this vary: lack of an available spokesperson, or tight deadlines ahead of E3. Perhaps, but it was impossible to escape the feeling that people just didn't want to be associated with such a discussion.

> **How can we understand changing attitudes to key issues if we as an industry are afraid of expressing our own thoughts?**

In an era when the internet can be highly toxic to anyone who dares to have an opinion, this is perhaps understandable, but arguably not acceptable.

If we want to advance this medium and explore its potential for storytelling, we need to not only address these topics in games – we also need to talk about them.

How else can we understand consumer expectations and changing attitudes to key issues that affect our audience if we as an industry are afraid of expressing our own thoughts on them?

Develop is always ready to talk. My email's below.

James Batchelor
jbatchelor@nbmedia.com

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LET'S TALK ABOUT SEXUALISATION IN VIDEO GAMES

The portrayal of women in games is an ongoing topic of debate in the industry. With the line between what players find acceptable and offensive seemingly blurring, **James Batchelor** asks how devs can ensure they design characters responsibly and without controversy

It's no secret: sex sells. But there's a difference between creating appealing, marketable characters and oversexualising them to the point of gratuitousness.

The problem is, the line between them is increasingly hard to define. Online debates around characters in *Overwatch*, *Street Fighter*, *Metal Gear Solid* and more show conflicting views of what does and doesn't need to be censored. In this climate, designing a heroine for your game might seem a risky business, so how do you ensure you avoid offending your audience?

First, says Rhianna Pratchett – the writer behind the *Tomb Raider* reboot – we need to establish the difference between 'sexualised and 'sexy'.

"Sexualisation is not inherently a bad thing," she says. "Context is the key. For me, 'sexy' is based on the character, while 'sexualised' is about the audience.

"Sexy is more than just looks – it's about attitude, personality and a certain amount of owned power. Sexy transcends gender, age and sexual orientation. Meanwhile, sexualisation tends to about be about the perceived desires of an audience."

> **Build sexuality into who your character is, not whom you want them to be for.**
> *Rhianna Pratchett*

TV host, writer and producer Liana Kerzner adds: "I'd love devs to start rethinking what it means to be a sexy woman. In the real world, people find women sexy for being intelligent, competent and tough – a dress that defies physics isn't a requirement."

THE WAY YOU LOOK

Much of the debate comes down to visual design – and a lack of realism.

"Observe the proportions of real women and strive to create female characters who represent a more normative look that would resonate with the majority of women," advises IGDA executive director Kate Edwards.

"Recent games such as *Mirror's Edge* and the *Tomb Raider* reboot have done a better job of creating female characters who look more natural, and their appearance and lack of extreme proportions don't detract from the gameplay or story in any way."

This also applies to your characters' wardrobes – specifically the practicality of what they are wearing.

"You can tell a lot of male designers don't know the first thing about how women's clothing works, because they put all this practical detail into their male characters' armour, then create female wardrobes that are stupid," says Kerzner.

"Take Cammy from *Street Fighter*. Her costume is strong, cute and sexy all at once – but any woman who has done gymnastics or martial arts will tell you a bodysuit with no legs ends up riding up your butt."

Animation is another oft-criticised aspect of female characters, with many arguing that walking with an exaggerated hip swing is overly sexualised. A recent episode of Anita Sarkeesian's *Tropes vs Women In Video Games* series was almost entirely dedicated to the difference between male and female animations.

"Realistic bodies should move like bodies," says Kerzner.

Pratchett says the secret to creating a balanced character is to consider every aspect of them carefully, and question the choices you are making.

"Don't over emphasise sexuality or gender through their art, animation or narrative," she suggests. "Build it into who the character is, not whom you want them to be for."

REAL WOMEN

Kerzner observes that there's a distinct difference in how many male and female characters are presented. Men, she says, often tend to be relatable, while women are 'perfected'.

"This double standard needs to change," she says. "If you choose realism, any romanticised element will seem out of place. But devs constantly design realistic men and romantic women in the same game.

"Real female cops, firefighters, army veterans and MMA fighters have a steel to their appearance that we don't see in the current crop of 'likeable' heroines. There are exceptions: Anna Grimsdottir in *Splinter Cell*, for instance. She looks like she's had late nights, stress and too much coffee. She's still glamorous and sexy, but she doesn't still have the skin tone of a sixteen-year-old. Similarly, Jayma in *Far Cry Primal* is covered in scars from animal attacks because she's a hunter."

Female characters are often cited as overly sexualised, but our experts argue this happens to men as well – yet people aren't talking about it.

"We see many male characters that are unnatural in appearance, with perfectly chiseled bodies and rippling muscles," Edwards says.

"The difference is that many of these male characters are viewed as powerful and strong, whereas the appearance of most female characters skews more towards sex appeal."

Kerzner agrees, adding: "Catwoman from the *Arkham* games has been criticised for the way she walks, having a sexy voice and so on. But what about the hyper-masculine Batman?

> **You can tell a lot of male designers don't know the first thing about how women's clothing works.**
> *Liana Kerzner*

"He is depicted with the physique of a bodybuilder even though his combat style is martial arts. His heavy boots would negatively impact his ability to climb buildings. Why was Catwoman singled out for criticism? Because we criticise a woman for being overtly sexy in ways we don't criticise men."

THE DEBATE CONTINUES

While fresh examples crop up all the time, this is not a new discussion – nor is it confined to our own industry. As Pratchett observes: "All entertainment fields, particularly comics, are discussing this topic in some form or another."

But it is something the games industry should be more conscious of – especially given the gender 'balance' of our global workforce. A 2015 IGDA survey discovered that 79 per cent of developers are male.

"This means we're more likely to see representations that are appeal to the male eye," says Edwards. "This is slowly changing as more devs realise that oversexualised character design is becoming passé and unnecessary for serving the intent of most games.

"Ultimately, the artistic freedom of game developers needs to be upheld, but developers need to be mindful of their creative choices, especially if their intent is to maximise their game's appeal across all demographics."

Kerzner concludes: "We've been indoctrinated with the idea that games are inherently made for a 'presumed male audience', and while that's true for some games, it's not across the board. Look at the early marketing for the Atari 2600 and the NES: the target audience is families.

"The problem is TV marketing, which is subject to rigid filtering by target audience, and gaming content for women is seen as 'too niche'. Gaming is stuck between a rock and a hard place: its marketing doesn't match its products. The industry's growth with women is being restricted by unnatural barriers, and when people get trapped in unnaturally close quarters, they fight. That's what's happening now." ■

Catwoman is often criticised for being overly sexualised, while the 'hyper-masculine' Batman is not

TALKING ABOUT TRACER

A recent example of the debate around sexualised game characters centred on Blizzard's latest release *Overwatch*.

Originally the Tracer character was shown in the pose you can see above, but the studio changed it after complaints that this was not in keeping with her character. We asked our experts for their thoughts.

Rhianna Pratchett says: "Although I didn't personally find Tracer's pose a big deal, I did think it was interesting that many people – including the developers themselves – seemed to feel that the sexualised pose just didn't fit with her character.

"However, very little fuss was made about a character like Widowmaker, who is more traditionally sexualised, because it had been built into her character and was part of who she was. Context matters."

Liana Kerzner believes there are far worse examples out there: "I didn't even think she was that sexualised – she just had a wedgie. The *Overwatch* character designs, across the board, are astoundingly good, and they're all sexy in their own way. Tracer is a character who I think has a crazy sexy voice. And yet someone determined that it's wrong for her to ever be conventionally sexy, because... 'think of the children'."

AT A GLANCE

JUNE 9TH
Mirror's Edge Catalyst
After two delays, EA DICE's free-running sequel sprints onto shelves.

JUNE 10TH
UEFA Euro 2016
We won't pretend to be football fans. All we know is it's happening.

JUNE 19TH
Father's Day
Prepare to either give or receive socks, power tools and beer.

JUNE 24TH
Mighty No. 9
The much-delayed crowdfunded spiritual sequel to *Mega Man* arrives.

JUNE 24TH
No Man's Sky
Hello Games' hugely ambitious space exploration title blasts off.

DIARY DATES

E3
June 14th to June 16th
Los Angeles, US
e3expo.com

JUNE

Feral Vector
June 2nd to 4th
Hebden Bridge, UK
feral-vector.com

Intel Buzz Workshop London
June 4th
London, UK
intelbuzz.bemyapp.com/2016/london

Games Britannia Festival
June 6th to 10th
Sheffield, UK
gamesbritannia.com

Escape Studios Game Jam
June 17th to 19th
London, UK
bit.ly/1syqZWk

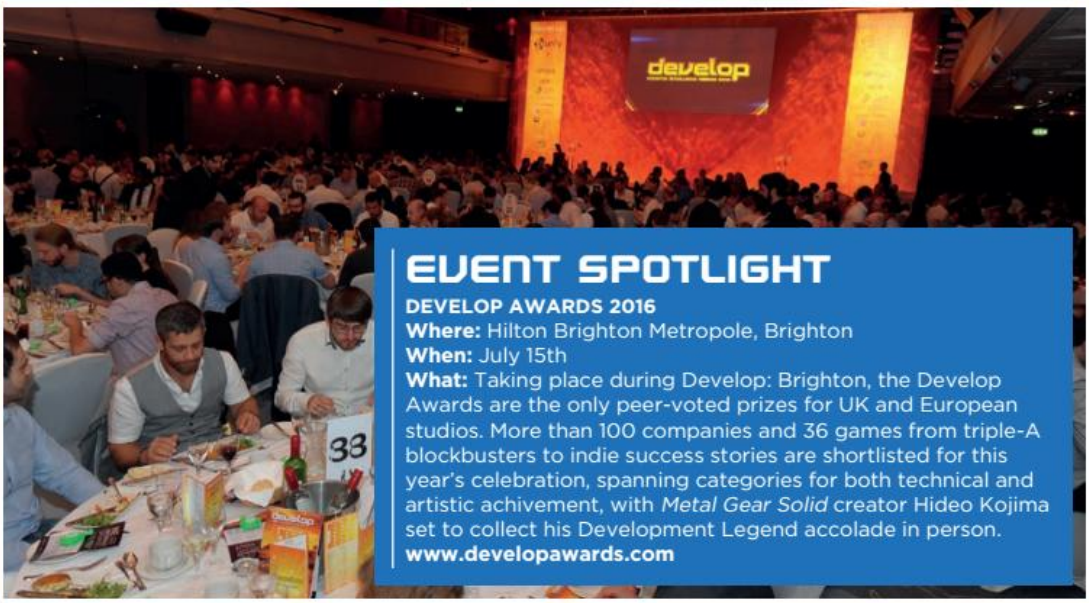
Women in Gaming: Dana Carney
June 20th
San Francisco, US
bit.ly/1WCMEt6

Brains Eden
June 24th to 27th
Cambridge, UK
brainseden.net

JULY

Develop: Brighton
July 12th to 14th
Brighton, UK
developconference.com

Mobile Game Asia
July 13th
Kuala Lumpur, Malaysia
mobilegame.asia



EVENT SPOTLIGHT

DEVELOP AWARDS 2016
Where: Hilton Brighton Metropole, Brighton
When: July 15th
What: Taking place during Develop: Brighton, the Develop Awards are the only peer-voted prizes for UK and European studios. More than 100 companies and 36 games from triple-A blockbusters to indie success stories are shortlisted for this year's celebration, spanning categories for both technical and artistic achivement, with *Metal Gear Solid* creator Hideo Kojima set to collect his Development Legend accolade in person.
www.developawards.com

COMING SOON

DEVELOP #173
JULY 2016: **THE AUDIO ISSUE**
Listen up: we take an auditory tour through the tools and techniques behind the industry's finest soundscapes, from audio effects to voice acting and soundtracks. Plus, there's a preview of Develop: Brighton and we travel back in time to examine historical accuracy in games.

DEVELOP #174
AUGUST 2016: **THE GAMESCOM ISSUE**
If you're finding it hard to get your game noticed, we have just the thing: a series of features looking at the best ways to attract players and boost your presence online. Elsewhere, we'll be previewing both Gamescom and GDC Europe, and looking ahead to the future of graphics tech.

For editorial enquiries, please contact jbatchelor@nbmedia.com
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A KEYWORDS STUDIO

VISIONS FROM THE FUTURE

Joost van Dreunen issues a stark warning about VR's prospects, as the emerging medium struggles to surpass its negative mainstream perception

Traveling on the subway the other day, I happened upon one of those rare early tech adopters who just doesn't care. Sitting in a packed train, here was a fellow immersed in his virtual reality headset surrounded by people who took turns glancing at him with varying degrees of disgust and curiosity.

Whenever a new technology first hits the market, it is a particular subset of society that takes it out into public, making it the first touchpoint for many others. This group of consumers are generally known as 'early adopters' because of their willingness to try out a new gizmo – often despite obvious flaws.

For virtual reality, this is currently the most important group of consumers. These are the evangelists.

Oculus joined HTC in setting a relatively high price point, thereby largely eliminating the more mainstream customer base. Their reasoning, of course, is to test the new devices out on this tech-savvy crowd, and to ultimately arrive at a value proposition that appeals to a broader audience. But is this group the first sign of things to come, or a statistical outlier?

The current stage of the VR business is not for the faint of heart. We've had to downgrade our forecasts twice this year already. This is largely because the major contenders in the VR market have set unusually high expectations of their technology, hoping it would align with consumer demand.

What we've seen so far, unfortunately, is a host of issues emerging in this nascent market. A bunch of pre-orders got lost in the mix, manufacturer delivery schedules have encountered delays and Oculus triumphantly announced the availability of its Rift at retail, even before it had managed to ship the many pre-ordered units for which consumers have already paid.

Mark Zuckerberg walking unnoticed past a headset-clad audience at Mobile World Congress highlights VR's isolating nature, says van Dreunen

> **The games industry is creating a multiplayer ecosystem beyond the couch. Yet VR is going in the exact opposite direction.**

But these are companies that are investing billions, so it is fair to expect them to resolve these initial issues over time, becoming more efficient in coming to market and lowering the average selling price of a VR unit. No doubt, they'll eventually figure out a way to make the technology more accessible for an average consumer.

VIRTUALLY ALONE

What will be much more difficult to change is the social perception of VR.

After hearing for years how technology and the internet will connect us all, VR's current iteration presents an isolated experience. This is lightyears away from Nintendo's messaging around the Wii, inviting everyone to play. It is also far removed from the extensive advertising done by games like *Clash of Clans*, *League of Legends* and *Hearthstone* that emphasise gameplay with others. The games industry at large is creating a multiplayer ecosystem beyond the couch. Yet here we see the first iteration of VR technology going in the exact opposite direction.

Worse, demographically the first group to indulge themselves in VR technology is rather homogenous.

For years, the games industry has been criticised for its focus on an 18 to 34-year-old male demographic. Here we see it again. It makes sense to target a tried-and-true audience to offset the risk associated with a new effort. But to truly become a mainstream technology, it has to rise above demographic boundaries. Both the devices and the content run a risk of being appealing mostly to a single subset of society. ■

Joost van Dreunen is co-founder and CEO of SuperData Research
www.superdataresearch.com

MEANWHILE ON DEVELOP-ONLINE.NET

Gareth Noyce on making Lumo: 'Triple-A isn't my calling'

develop.net/24GlOVh

Creators of the Dark Souls comic on why more devs should consider bringing their games to the page

develop.net/1NpcPjF

Studio Wildcard: 'We're the anti-eSports eSport'

bit.ly/1WBdz8B

FIRST IMPRESSIONS OF THE GREAT WALL

Dave Ranyard reveals how a wonder of the world inspired his future dev plans

My first visit to China made me both scared and excited. As a new indie, an exploratory trip to China is a speculative luxury. But when I was invited by an old friend to join a cross-border investment roadshow, I decided to take the plunge – just as I did when I left Sony three months ago.

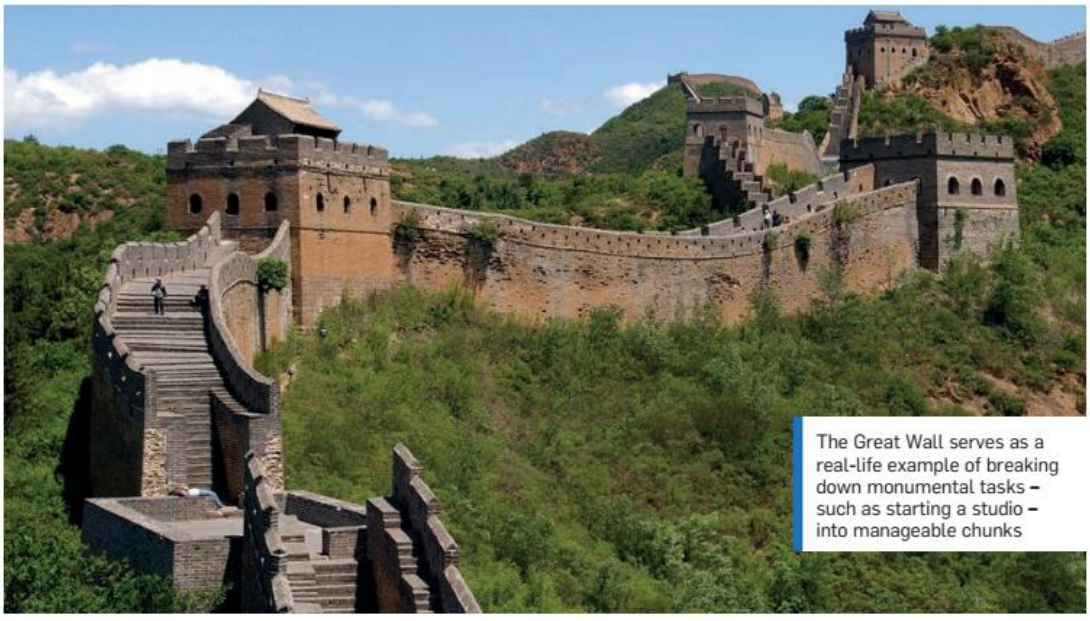
As I travel on airmiles, I had to leave a day early, but at least this gave me a day to visit China's most amazing construction: the Great Wall – and what a sight it was.

Just the basics are astounding. 5,500 miles. One million workers. Four trillion bricks. A seemingly impossible task, just like starting a studio. But they broke the wall down into sections and subsections, dividing it into more manageable chunks. Good advice for me as I see the enormity of my own ambitions ahead of me.

After a few days of meeting other CEOs, start-ups and investors from China and Silicon Valley, I realised that the Great Wall itself is like a reflection of China today.

Firstly, the scale of China is staggering. There are 1.4bn people and 560m smartphones. Email has been leap-frogged and everyone uses WeChat to communicate, send files and even pay for stuff. As a new market it is simply huge, and it is interesting to note that Western platforms like Facebook Messenger lag behind the functions on offer from their Eastern equivalents. They openly admit they are good at copying, but what seems obvious after a couple of days is that they also improve on the original by using a very pragmatic approach to design and development.

Another great takeaway for an aspiring start-up: wealth. The Great Wall didn't come cheap. It was a huge investment of time, money and infrastructure on an incompressible scale. Everyone I meet tells me there is a ton of cash in China and they are keen to invest abroad. I have asked a few people where the money comes from with a variety of answers: it has always been here, it's pent up capitalism or China makes everything the world uses – the most likely one, I reckon.



The Great Wall serves as a real-life example of breaking down monumental tasks – such as starting a studio – into manageable chunks

> **The Chinese are good at copying, but they also improve on the original by using pragmatic design and development.**

They do, however, have clear guidelines as to how to evaluate you as an investment. This is some great advice I was given by a Chinese American as to how he evaluates a company to invest in:

1. Geography: is the economy stable?

2. Sector: is the business in a growing sector? Games and VR both pass this with flying colours.

3. Is the business model sound?

4. Is the team good, great or outstanding?

5. Is the product worthy of investment?

CHINESE WISDOM

What an achievement the Wall is. It would be impossible today, even in China. It is clear to me that people here pride themselves on personal and societal achievement. Before coming, many friends told me how crazy it would be, which is true. But, actually, I am really impressed by the infrastructure.

Drivers must forgo using their cars one day per week, with heavy fines as penalties. Interestingly, the structure is designed for overall efficiency, much the same way we organise our development teams. There is a clear influence from Californian start-up culture and everywhere has incubators or WeWork equivalents, allowing teams to focus on their key goals.

I have learned much more than I ever expected on this trip and, just as I have fallen in love with the accomplishment of the Great Wall, I am falling in love with the country and culture of China itself.

One of the developers I met here gave me some advice: maybe I could use some Chinese architecture in my products to help them sell in China. I think I will and, actually, I think it will help them sell in the rest of the world, too. ■

Dr Dave Ranyard is an independent developer. He previously led Sony's London Studio, creating multiple titles for PlayStation VR. He will discuss virtual reality development at Develop: Brighton. **www.developconference.com**

What the death of Disney Infinity means for toys-to-life

develop.net/24L4iLX

DLC done right: Techland's Tymon Smektala on building add-ons with true value

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Creating the perfect user interface for VR

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VALUE YOUR **STEAM KEYS**

Kiss CEO **Darryl Still** explains why you should consider physical and digital SKUs as equal, and warns against giving your game away for free

A 15-digit set of numbers unique to every individual SKU. No print costs, no faulty duplication – just a row of numbers that allows an individual user to access and download a game to their library. How do we value that?

The simple answer is that we should value it in the exact same way we did a cassette, a floppy disk, a cartridge or a CD: by the quality of the content it releases. We should treat a Steam key with exactly the same attention to detail and security as we treat a PS4 Blu-ray.

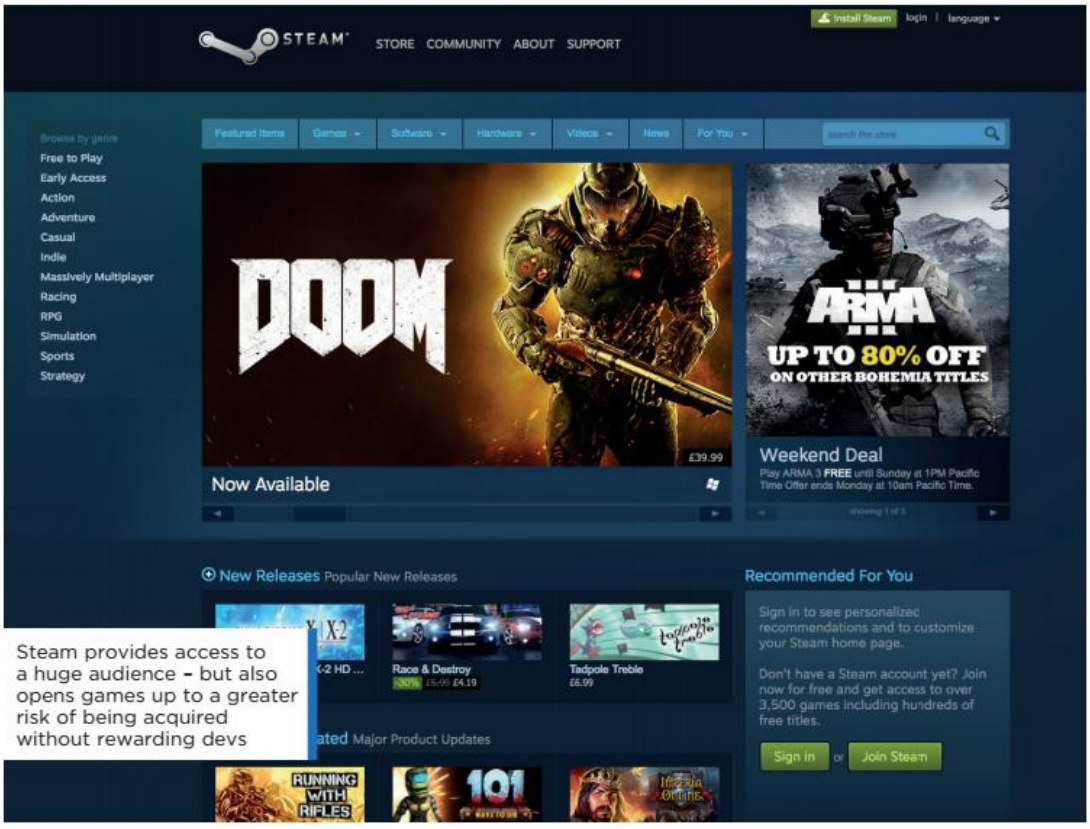
Valve is extremely flexible with how you can use your keys. They recognise that it is your product and understand that each user of a key ends up on their platform as their customer – even if they do not get the initial purchase value.

This has led to a plethora of great gamers sharing their experiences and promoting your titles to an ever-growing audience. But with every benefit comes a risk, and there are just as many 'gamers' out there who have recognised an opportunity – and they are growing just as quickly.

We receive many requests every day for keys – from the YouTuber or Twitcher with 6m followers who will review your game live for all to see, to the blatantly honest "I am very poor and cannot afford to buy your game, please can you send me a free key?". In the middle of these lie a huge amount of curators and start-ups who promise to review or promote your title to their thousands of followers.

It is often impossible to sort those who are valid from those who just want a free key – or worse, those who will take the keys you give them and resell them on one of the many new sites set up exactly to exploit this ease of access.

So, how do we differentiate the valid from the exploitative?



Steam provides access to a huge audience – but also opens games up to a greater risk of being acquired without rewarding devs

DIGITAL WEALTH

The first step is to place the same value on a product key as you would on a physical product. Sure, you don't have the packaging costs and postage to think of, but releasing 100 keys to one small start-up that promises to run a competition to its fanbase is the equivalent of packing up a box of 100 packaged CDs and sending them via UPS to an address in the Ukraine – with the vital difference that actually you don't even know the address of where you are sending them, and run a pretty high chance that some of those keys will end up in the hands of people who may have been considering purchasing the game had they not been presented with a legitimate key for free.

> **We should treat a Steam key with exactly the same attention to detail and security as we treat a PS4 Blu-ray.**

A MATTER OF CONTEXT

I am not saying to not use keys for promotional circumstances, even in large numbers.

We have more than once used a large key giveaway to spark increased sales of a good game by giving it a solid userbase and creating a good review culture around the title.

When done properly, in experienced hands it can be very beneficial, but giving away keys for a poor game will very rarely save it – it will simply increase the number of disappointed end users, even if they didn't pay for it.

Badly-placed giveaways can be just as damaging and there are many keys sloshing around, particularly in the Russian regions, undermining the retail value of a title and causing a knock-on race to the bottom effect that can have a long-term effect on the development industry, especially for smaller independent developers.

So the recommendation is to work with a knowledgeable and established publisher or, at the very least, lean on an experienced PR agency to make sure that your keys are going to places that will benefit a game you have confidence in.

A good game will find its value whether at full price, in an occasional weekly sale or as part of a bundle.

Value your product at all times, and remember: a product key for your game is still your product – even if it's only a 15-digit representation of it. ■

Darryl Still is co-founder and CEO of Kiss Ltd, an independent games label that specialises in digital games. You can find out more at **www.kiss-ltd.co.uk**

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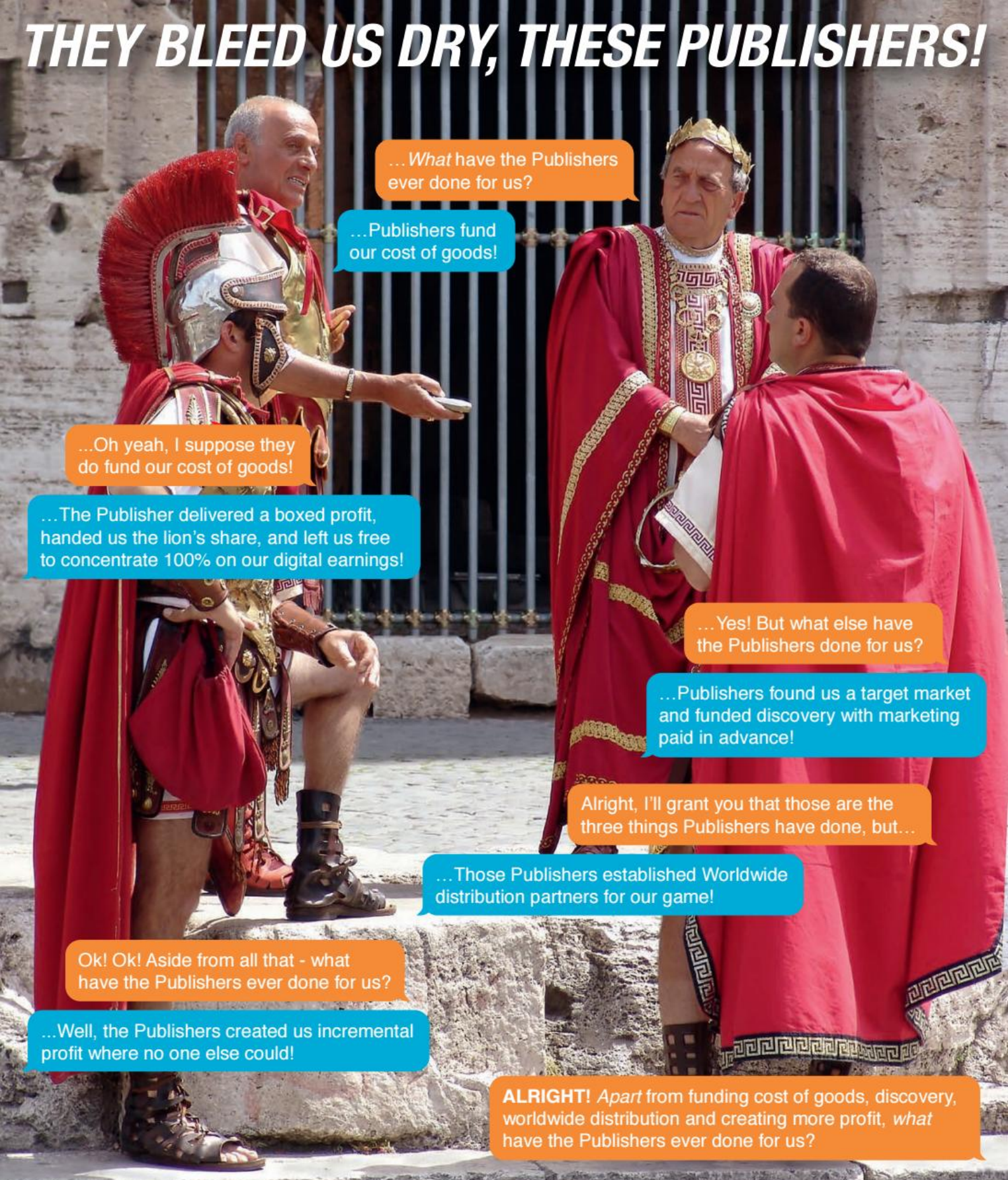
…*What* have the Publishers ever done for us?
…Publishers fund our cost of goods!
...Oh yeah, I suppose they do fund our cost of goods!
…The Publisher delivered a boxed profit, handed us the lion's share, and left us free to concentrate 100% on our digital earnings!
…Yes! But what else have the Publishers done for us?
…Publishers found us a target market and funded discovery with marketing paid in advance!
Alright, I'll grant you that those are the three things Publishers have done, but…
…Those Publishers established Worldwide distribution partners for our game!
Ok! Ok! Aside from all that - what have the Publishers ever done for us?
...Well, the Publishers created us incremental profit where no one else could!
ALRIGHT! *Apart* from funding cost of goods, discovery, worldwide distribution and creating more profit, *what* have the Publishers ever done for us?

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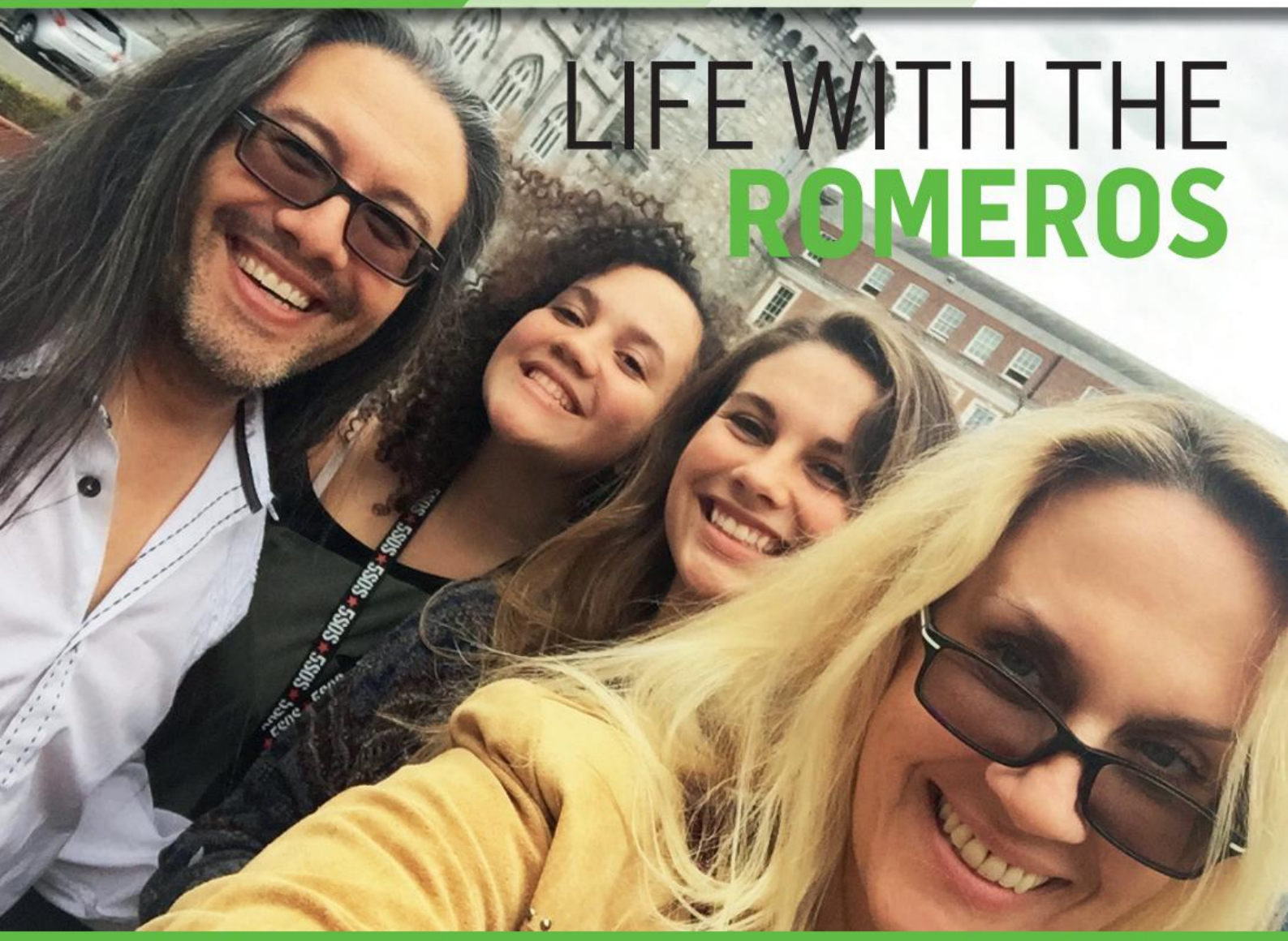

LIFE WITH THE ROMEROS

John and Brenda Romero are undeniably the power couple of the games development world. **James Batchelor** caught up with the duo to find out more about how they balance their home life and work in games

In December 1987, John Romero was working late at New Hampshire studio Origin Systems.

He was happily coding away when COO Robert Garriott, brother of Richard Garriott, asked him for help getting the latest *Ultima* running on an Apple II in preparation for a visit from Sir-Tech. The studio was bringing over a demo of the new *Wizardry* game, and with them was Brenda Garno – the woman who would later become his wife.

"John and I have this dynamic duo thing," Brenda tells *Develop* when thinking back to how they first hit it off. "We both really like board games, we've been in the industry for a long time, but also neither one of us drinks. So what ended up happening is, when we went to conferences, we would just end up hanging out – and this happened for years."

So how do you go from being friends in the '80s to being a couple?

"I was doing a Masters thesis on game designers," Brenda explains. "I decided to move away from board games and focus on video game designers. I picked John because he'd done this huge range of games. Obviously he had the most success with his FPS titles, but he'd worked on a ton of different games. So I wanted to interview him and understand his level design style.

> **When we went to GDC after we started dating, there were people who were unaware we hadn't been a couple before.**
> *Brenda Romero*

"Over the process of interviewing him every day, talking to him for about an hour every day, we got to know each other outside of games. We decided to start dating. The funny thing that happened is that, when we went to GDC after that, there were tons of people who were unaware that we hadn't been a couple before."

The passion the pair share for games – both board and video – has become the bedrock of their relationship, just as it was for their friendship before. Understandably so: John Romero was something of a child prodigy, dabbling in development at ▶

just 11 years old before turning professional at 15. Similarly, Brenda was designing games at just 15. As she puts it: "It's truly all we've both ever done."

'OUR LIFE IS GAMES'

You would think it might be difficult for the couple to avoid falling into the chasm of 'all work and no play' – and you'd be right. When we ask how they maintain a work/life balance, John simply replies: "There isn't one."

"Our whole life is games," he says. "We don't even act differently around the kids. This is all we do: make games and talk about games. The kids all play games, and have even started developing them. I mean, they're normal kids; they still read, play outside, hang out with their friends. They have to be doing other things to have content to feed their creative engine.

"We own our company together, we get up and walk to work together. We work all day and then come home to see the kids."

Brenda adds: "If it felt like work, I would be more keen to shut that off from time to time, and not think about games for a while. That's not to say that doesn't happen; sometimes I want to talk about anything but games.

"I sometimes joke that I had to be in the industry 30 years in order to survive as the wife of John Romero. But there's such a shared interest. I love that at three o'clock in the morning, we've had really ridiculous conversations about exponential and logarithmic functions in experience curves. These conversations can last an hour – and there's no other spouse who would say: 'That's amazing, that's an interesting point'."

Of course, John's dedication to his games can shake up the family routine somewhat. If he's keen to fix or perfect something in a project, he'll often spend more time at work than he realises – something Brenda keeps a close eye on.

"If John's in level-building mode, he could die if no-one shows up at the office to feed him," she says. "I'll remind him he has to be home to spend time with the kids. The second they go to sleep, he can go right back – providing he makes sure that the kids don't feel deprived as a result of having games developer parents.

"Sometimes that means that he's got to work Saturdays and Sundays, but the office is set up so that we can have a *Minecraft* marathon with the kids there."

John adds: "The kids love going to the office. There's consoles, computers, and everything."

> **We've had really ridiculous conversations at three o'clock in the morning about exponential and logarithmic functions in experience curves.**
> *Brenda Romero*

A major advantage, of course, is that this shared passion for games and game design means the Romeros support each other throughout their endeavours – something Brenda takes particularly close to heart.

"I will encourage him whenever I can," she says. "Sometimes John goes back to the office to work after the kids have gone to bed. I support that, because I love the stuff he creates.

"And he supports me. There's nothing as good as being able to share your deepest love with somebody and have them look into the same little obscure glass with 35 years of games industry experience and say 'I get it'. It's worth its weight in something far more valuable than gold."

COUPLE AND PARTNERS

When two people are creating in the same area competition must be a danger, but both Romeros say this has never affected them – although Brenda observes with a smile that her best game (*Wizardy*) has become less well known than John's worst (*Daikatana*).

However, things truly heat up when it comes to playing games.

"For years, we had about nine games going at once – not just video games, but life games," says John. "Like our 'have fun' game. If one of us says 'have fun' to you first, we get the point. If you say it, we both lose but the first person to say 'thanks' wins. You basically trash us if you say 'have fun'."

The pair are, as you would expect, "ferociously competitive" when playing video games. Brenda still bests John at *Ghost Recon*, but cannot come close to him on *Doom* – no surprises there.

"In *Doom*, I've killed him twice – once was a lucky shot, the other was a telefrag," she says. "That counts!

"But John is garbage at *Drop7* and I've had the high score now for years. I got it even higher, but he's still feverishly playing. He hasn't accepted it.

"This is how bad it gets: I even tried to take a hit out on John. I got a pro player, a really famous one, to take him on – and John still fucking beat him. It was first to 50, and they were pretty close up to around 35 points. Then John 'patterned' this player. He works out your pattern, the routes you take through the level – it was a beautiful murder festival all the way up to 50."

A FAMILY OF DEVS

Spend any amount of time with the Romeros and you'll soon learn how infectious their enthusiasm for game design can be. So it comes as no surprise that their children – six of them – have been inspired to lay the groundwork for a career in the industry.

"We're in a beautiful situation as a family where everybody's involved," Brenda explains. "The whole family takes part in whatever it is we're doing, to whatever extent they can. The youngest kids might just be playing the games but they feel like a vested part of it. And that's amazing."

John tells us about their eldest, Michael. Once a keen football player, his love for RPGs and games led him to try developing in Flash.

"When he finally got out of high school, he basically decided he was done with sports and wanted to get in the games industry," says John. "So he

While they might disagree over game design, the Romeros say they have never had a full-blown argument

got a degree and became a 3D graphics game programmer. He's been in the industry for seven years, worked at several companies and he's now an awesome programmer, extremely driven. That was just from him deciding he wanted to do that."

Brenda adds: "Some things are very different for kids that have been raised in this environment. For them, this feels very normal. I remember once when Donovan needed something at school, he told me what he needed and he told me: 'Mommy, that's a P1.' As in, Priority One bug. So I had to explain to him that P1 means no-one goes home until it gets fixed. When you need something for school and it's a Friday, it's probably a P3, I'll get to it over the weekend."

One of the youngest, Donavan expressed an interest in coding when he was six years old, so John told him he had to "nail reading".

"You have to learn how to read before you can code, because there's a lot of words involved," he says. "*Minecraft* really made him want to learn how to read, because when we all play at the same time, we're talking to each other through chat and when he was four or five, he'd really want to know what we're saying."

While Donavan was still not old enough to code, he did write out an 87-page game design document in a notebook, encompassing everything from level layouts to UI. When he showed his parents the finished design, Brenda says they did what any self-respecting parents would: held a launch party.

"He's probably the best example of what a kid looks like when they're totally raised in a game dev environment," she says. "He comes up with an idea, and we're 100 per cent behind him. John's doing programming lessons with Donovan now – they even film it and release them on Vimeo.

"We don't talk to him like everything's cute, either. If he thinks one of his ideas is interesting, we ask him why and what would make it good as gameplay. He even talks like a game developer, referencing core loops and so on."

IDEAL RELATIONSHIP

It's not just the boys, either. 15-year-old Maezza is becoming an avid coder and Brenda is looking forward to working on a game with her this summer – "a lifelong dream of mine," the proud mother says. In fact, the whole Romero family is attending a game jam hosted in a Swedish castle this year and will be working on a game together.

A career in games design is by no means mandatory in the Romero family. 17-year-old Lillia is actually more interested in singing – the other hereditary talent in the family. John's father was a professional singer and, according to Brenda, "John could just have easily gone into metal instead of games".

"Whatever our kids' creative passions are, we'll support them 100 per cent," she adds.

For other dev couples out there, John and Brenda offer the following advice: figure out how you're going to work together as well as live together. Ask yourself how you would resolve any kind of conflict – while the Romeros have had design-based disagreements, they confidently claim they've never had a full-blown argument.

"The rivalry between us makes things interesting, because it helps us design games," John smiles. "We can see what gets people competing."

Most importantly, says Brenda, make sure you're with someone that shares your passions.

"John and I have such an unbelievably amazing relationship," she says. "We're best friends. If I had to go through everything in my life that sucked to get to where we are now, I would do it twice.

"Of course, it would have been great if he'd just said in 1987: 'Hey, you're cute, want to get married?'" ■

THE FINALISTS

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HOW TO BUILD A UNIVERSE

Many major gaming franchises have settings that have more depth and engaging characters than even the biggest Hollywood blockbusters. **James Batchelor** asks leading writers, artists and more about the work that goes into establishing such compelling worlds – and catering to the avid fanbases that follow them

Fans can be as familiar with fictional worlds as they are with the real one. Most people can tell their Vulcans from their Klingons, chant at least one spell from Hogwarts, or warn you to let the Wookie win.

Similarly, more and more consumers are able to describe a Krogan, differentiate the races of the Covenant, or tell you which kingdom takes Rupees. Settings with extensive lore and recognisable races spark the imagination of players, prompting story arc speculation, fan fiction, cosplay and more.

But how do these worlds take shape? At one point, all of them were nothing but scribblings in a notepad – and often grouped into that risky little cluster known as new IP. Start-ups and indies are often advised to think beyond their current project to the next two or three – what if you want to build all of them within the same universe? Where do you start?

David Gaider, the lead writer behind BioWare's *Dragon Age* series, says that the most important thing for devs to remember is that they don't need to reinvent the wheel.

"It's key to have certain aspects that only exist in that world, but without overwhelming it with too many distinctive things – otherwise it becomes just a mish-mash to the eyes of a new player," he says.

> **If everything's different, it's overwhelming. Start with the familiar.**
> *David Gaider, Beamdog*

"If they walk in and everything is different, they're overwhelmed. But if there are touchstones that they're familiar with, alongside certain things that stand out, that's going to be more accessible. Start with the familiar and go from there."

Frank O'Connor, franchise development director at 343 Industries, agrees: "It's hard to succeed initially without some central spark that resonates with players. In the case of *Halo*, the ingredients were beyond familiar – deadly alien alliance, ancient mystery and plucky human military – but

the sum was definitely greater than the parts. The first *Halo* dropped you directly into that world, literally in the middle of combat, and that instant immersion helped cement the feel of the universe for fans."

Certainly, Bungie accomplished this with *Halo* and, now, *Destiny*. Having handed the reins of the former to 343, the studio is hard at work on its ten-year plans for a universe with 'as much depth as *Star Wars*'.

That's not to say devs should repurpose everything that's come before. Jonathan Jacques-Belletête, Eidos Montreal's executive art director for the *Deus Ex* series, says a unique blend of styles can make your world stand out.

However, this can be challenging to accomplish, as the team discovered when trying to blend cyberpunk with the Renaissance.

"When you work so hard at finding something that's never been attempted or mixed together, you realise there are no references to give your artists," he says.

"There are references for the two variables you're trying to clash together, but the actual mix itself does not exist – that's the whole idea of doing something that's never been done before.

"We had tons of references from the Renaissance – fashion, architecture and so on – and the same thing for cyberpunk, and we had to find a way to clash those two things together in a way that would work. [*Deus Ex* hero] Adam Jensen literally took two and a half years to make – he went through many extremely bad designs."

Mary DeMarle, executive narrative director at Eidos Montreal, says it's also crucial to obey your own rules: "If you really want people to buy into your world, it has to have its own consistency. You can't just throw things in that might contradict what's come before or make no sense to fans. But as you're building bigger and bigger, it gets harder to be consistent."

FANTASY FROM FACT

Drawing on real-life influences can be invaluable. While *Halo* and *Deus Ex* are obviously set in our world – albeit alternate future versions of it – Gaider built Thedas around his research into medieval Europe, modelling fantasy nations on the UK, France and more. Reality can make fiction more absorbing, but it has to stem from everything you design.

"Fans believe it and appreciate it, and you can't brute force that into a single element like cinematics or combat dialogue," says O'Connor.

Research, then, is the first step to creating a world. Jacques-Belletête says the *Deus Ex* team spent months reading up on as much as possible – even the art team.

"I fill notebooks when I'm doing early world building – and it's not even drawing," he says. "Because I know that once we find a good idea and have something solid that hasn't been done before, making it happen visually is almost the easier, more fun part."

DeMarle adds: "We did a lot of reading into where science is taking us and what's happening in various fields of technology. We also had a technical consultant who checked our science and gave us more ideas. So, for us, the best way to create a unique vision of the future is to start with what we know and what we see happening.

"You can get lost in research, so be careful about that, but the more you can ground it, the better and stronger it will be. That said, you can't hang on to any idea too tightly, because once you start executing it, it changes and you have to let it go to suit what works."

Ensuring your world is visually plausible is also key. Players need to believe that your creations could exist, says Jacques-Belletête.

"We were really picky about how everything mechanical is thought out and designed on *Deus Ex*," he explains. "If you look at anything around you – a phone, a keyboard or mouse – it's been manufactured and looks a certain way, with assembly lines in certain places, different materials and so on.

"In the games industry, this is becoming a lot better understood. Since *Deus Ex: Human Revolution*, a lot of games are starting to master this. Back in 2007, this is something that a lot of concept artists did not understand very well. There are exceptions: the *Metal Gear Solid* series, and a lot of Japanese creators in general, have always done amazing industrial designs – you can see it in animé, and so on."

> **You should never underestimate how important it is to fill out the backstory.**
> *Mary DeMarle, Eidos Montreal*

LORE & ORDER

A major factor when building a new universe seems to be the lore: fictional histories, religions and often thousands of years of make-believe politics that take place before the player even starts the game. While it can be fun for

writers to get carried away with creating this, it's vital to ensure it is still accessible.

"You don't want to assault the player with bizarre names," warns Gaider. "The beginning of *Dragon Age Inquisition* went through many iterations to avoid bombarding you with what has happened: the Chantry, the Divine, the Tevinter – even the Grey Wardens came up at one point. All players would have heard was a load of names and not fully understood what's going on.

"You have to almost drip-feed your lore, and try to avoid requiring the player to know these things. Just tell them what they need to know to complete their next task. They don't need to know the background – that can be going on, and you can make investigation into it optional."

O'Connor adds that devs can be guilty of implying that backstory and extended fiction, such as spin-off novels and comics, are necessary to enjoy the story.

"They're absolutely not," he admits. "We have a core mission to ensure that the story you get in each game episode makes sense, is compelling, and builds upon what has come before. The other stuff is extra and, for a lot of our fans, helps cement their understanding of the universe. We're guilty of stretching that, and sometimes need to pull back."

Gaider stresses that backstory is still needed – even if you cut it from the final game: "If the developer or the writer has only created the part of the world players directly interact with, that becomes readily apparent. When a writer knows way more than the player ever sees, there's a sense that there is lot more happening in the world. I think it's important that this exists, so I don't think it's possible to develop too much.

DeMarle concurs: "Never underestimate how important it is to fill out the backstory. You can't just throw in an idea without thinking about it because that will cause you problems later on. The more you know about your characters or a city, the more real they will become."

Your lore doesn't have to be set in stone from your first title, either. DeMarle observes that history is written by the winners and can differ depending on when your game is set.

Matt Firor, director of *The Elder Scrolls Online*, said his team was still able to be creative with a fictional history that was first established in the 1990s.

> **Great stories and characters are the foundation of any world – game or otherwise.**
> *Matt Firor, ZeniMax Online*

"We are not lacking for lore in *The Elder Scrolls*," he says. "It was an interesting challenge for us though, as we are set before the other games. We couldn't use much of the existing books and characters, because in our game they haven't happened yet. So, we had to write much of our own lore books – but we could do fun things like allude to things that would happen in the future."

WORLDS APART

All of this, of course, depends on the type of game you're making – as ZeniMax Online discovered when making its MMO take on a pre-established RPG series.

"*Elder Scrolls* is known for its gritty realism and being more down-to-earth than other fantasy IPs, and we – of course – stayed true to that," says Firor. "However, as we are a multiplayer game, we had to design our characters, animations, and world environment with the understanding that we couldn't control how many figures would be on screen at once."

Inset: Bungie's *Destiny* has been designed to invite the same fandom as *Star Wars*

Main: A vista from *Skyrim*, courtesy of Dead End Thrills

DeMarle adds: "If it's a story-driven game, then the narrative needs to come first – or at least simultaneously. We can't create all these levels and then figure out what the story is. We have to define the themes we want to explore, the setting, the characters – how can we reflect these in the game's environments?"

Gaider warns that, while you may be proud of your new world, it's important not to take it too seriously.

> **Look for inspiration everywhere apart from games.**
> *Jonathan Jacques-Belletête*

"When you're being introduced to a new world, you're having all these new names and concepts thrown at you, but there's no charm," he says.

"In some of the new IP I've played recently, all these efforts are made to make the player learn about the world but not to make them like it."

Jacques-Belletête stresses that devs should search far and wide for inspiration when creating their own universe – not just in other games.

"Look everywhere apart from within the industry – and maybe even movies," he says. "I find that we stealth reference way too much and I think that's a problem. Things don't stand out for the right reasons, or don't stand out at all.

"Go and look at stuff that, at first, doesn't even appear to be related to what you want to do. Go see crazy shit: underground art exhibitions, modern art stuff. That's when you're going to start having ideas that you never would have had."

O'Connor concludes that, while it's vital for you to define as much of your world as possible, it's even more important to still leave room for the players' imaginations.

"We've come a long way from *Space Invaders*, where players filled in elements that technology couldn't support, but offering the player the opportunity to commit their ideas into your story is a fantastic way to engage," he says. "As our worlds look more real, that challenge – ironically – gets harder and harder. Don't hold their hand, just light the way." ■

CHARACTER BUILDING

Presenting the 1,000-page history of your universe to players can be tricky, but there is a perfect channel to convey this: your characters.

"Locations don't have to matter so much if the characters performing in them stick around in your mind," stresses Bethesda's Matt Firor. "Great stories and characters are the foundation of any world – game or otherwise."

Former BioWare writer David Gaider talks us through the studio's process: "When we sit down and design a character, we're not trying to make them unique in every possible way. We're trying to work out how they connect the player to the story.

"It's hard to make players care about saving the world because it's a big, vague concept. 'Go save a million people' – fine, but why would I care about that? You need to make the player care about a member of that group."

A prime example of this is *Mass Effect*'s Tali, gamers' best insight into the Quarian race. Through her plight, we become involved in their fate.

Gaider adds: "Having characters that represent and embody the larger conflicts at work is what's going to make the player care – because you don't care about conflicts, political concepts and nations. You care about people."

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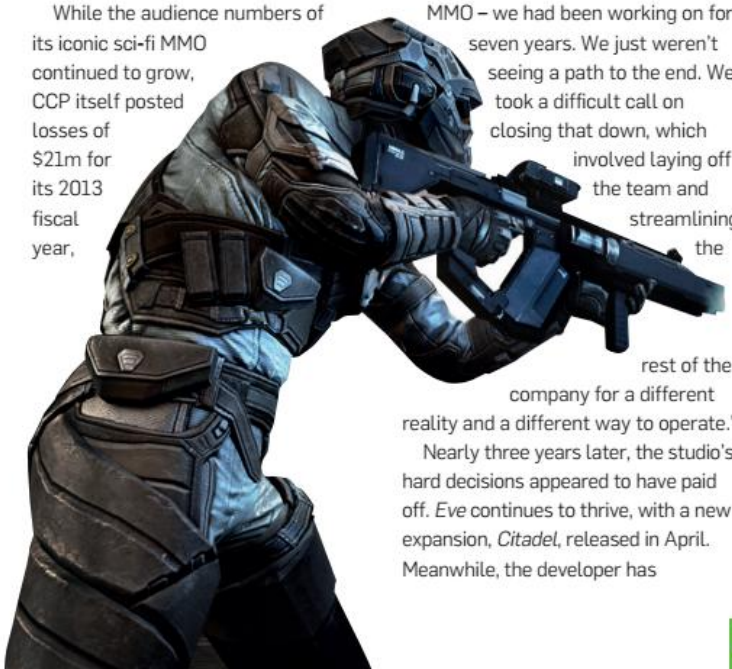
THE EVE OF A NEW CCP

Three years on from a major shake-up spurred by falling financials, cancelled projects and layoffs, Eve Online developer CCP has posted record profit numbers and is helping to lead the VR revolution. CEO Hilmar Pétursson tells **Matthew Jarvis** how the studio reversed its fortunes – and what comes next

If CCP was one of the monolithic Titan spaceships that populate its virtual universe of *Eve Online*, 2013 through to 2015 would have found it slowly circling a black hole, engines cut and smoke pouring from within.

While the audience numbers of its iconic sci-fi MMO continued to grow, CCP itself posted losses of $21m for its 2013 fiscal year, and was forced to let go more than 50 employees. The following year, its San Francisco office was closed.



"2013 was a very tough year for us," admits CEO Hilmar Pétursson. "We did a lot of difficult change. We cancelled a project – the *World of Darkness* MMO – we had been working on for seven years. We just weren't seeing a path to the end. We took a difficult call on closing that down, which involved laying off the team and streamlining the rest of the company for a different reality and a different way to operate."

Nearly three years later, the studio's hard decisions appeared to have paid off. *Eve* continues to thrive, with a new expansion, *Citadel*, released in April. Meanwhile, the developer has expanded its efforts to the burgeoning VR space, launching *Gunjack* for Gear VR last year and dogfighting spin-off *Eve Valkyrie* alongside the Oculus Rift headset in late March. On the horizon lurks a *Gunjack* sequel and *Project Nova*, a spiritual successor to 2013 first-person shooter *Dust 514*.

It's a big change for a studio that until last year had only released two titles. The company is supporting its rapidly expanding line-up with the opening of a new office in the UK, the brightest new star in CCP's constellation.

"Back in 2013, we made a lot of changes to how we operate our development process and how our studios interact and all that," Pétursson recalls. "We've gone for each development office being much more focused on its project and having much more economy in the positions.

"We've seen the first results of that in *Gunjack*, which the Shanghai team put together last year and released in November to raving success. Then, of course, we have *Valkyrie* coming out of Newcastle, and that team is extremely focused on that. We have *Eve* in Reykjavik, as well as some smaller start-up projects that are too early to talk about. Then we have a team in Atlanta doing advanced research into what comes next for VR.

"The centre of the company is kind of in London right now. We will probably move more into a model where we have people just coming together in London when we're doing reviews and product feedback and things like that. We have, with this establishment of the London office, been making an operating reality by facing the facts."

DUST TO DUST

While *Eve* may be the game that made CCP's name, the studio's latest efforts in VR actually take inspiration from somewhere you might not expect: oft-overlooked PS3 shooter *Dust 514*.

"We took a lot of the lessons from the *Dust* production into *Valkyrie*, which has benefited the game tremendously," Pétursson reveals. "What we tried with

Known solely for *Eve Online* for almost a decade, CCP now has multiple projects for PC, console and mobile in the works

Dust was an extremely long-ranging mission, and *Dust* provided a lot of technical achievements. There were a lot of elements relating to how to organise things on the backend of the servers with the demand of having two games in the same IP as gamer services and all that, which definitely harkened and informed a lot in how we've managed the development of *Valkyrie*."

Almost exactly three years after it was launched, *Dust 514* was taken offline, paving the way for *Valkyrie* and newly unveiled free-to-play PC FPS *Project Nova*.

"One of the lessons from *Dust* is that each and every game has to stand on its own and work in isolation before you layer in the connectivity," Pétursson says. "With *Dust*, we attempted to do both at the same time. With *Valkyrie*, we are very much focused on it being an awesome space shooter built from the group-up for VR. Then we know it is fairly easy for us to layer in various sorts of connectivity. We're very much building the onion from layer to layer, instead of – as we attempted with *Dust* – from all the different layers.

"*Dust* taught us many lessons and we have a lot of experience in doing this now. At the time it was very innovative and I don't think anyone has still taken it to the level that we did. There's a lot of people exploring this, it's something that gamers are curious about and we will definitely continue to explore more after we've got this game to stand on its own two feet."

WORTH THE SACRIFICE

Having ventured from its home planet on PC into the galaxies of consoles and VR, there remains a largely unexplored sector for CCP: mobile.

> **Each and every game has to stand on its own and work in isolation.**
> *Hilmar Pétursson*

"We are more interested in mobile companion apps when it comes to mobile," Pétursson responds when asked about developing for the platform. "Making original games for mobile is not so much in our wheelhouse. It's such an expertise field by now, and it's not really a format we are well suited for as a company and as a culture.

"We are much more gravitated to VR – that plays a lot more to our strengths. VR is a platform unto itself, so that has been a huge focus. Our forte is PC gaming and online – we have become a bit of a content leader for VR, so these are the things we will be focused on going forward."

His words highlight the current mood of CCP; equipped with a new studio, newfound confidence in its projects and the knowledge needed to capture emerging platforms, it's a developer with the future in its sights. It's a huge transformation from three years ago.

"2013 was a very tough year for us," Pétursson reiterates. "But, out of that, we started to change a lot about how we do the projects. We started to do many more projects, also focusing more on VR.

"These two factors combined have led to a record profit year in the history of the company last year. Our profit was over $20 million, and we also did a financing round at the end of the year where we raised $30 million. We are now in an extremely good position when it comes to balancing strength and overall financial strength.

"It was a very difficult thing to do, to make the changes we did in 2013, but it is definitely working – those difficult calls put us in the place we are today." ■

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STANDARDISED TESTING

QA and localisation firms face countless challenges as games evolve, making it increasingly hard to ensure games are released to the same level of quality – but there are some who believe setting industry standards is the answer. **James Batchelor** asked experts what they would recommend

Go to any conference or event about QA and localisation and you'll often hear mutterings about the need for standards.

With so many high-profile, triple-A titles suffering from a myriad of bugs and server troubles at launch in recent years, much of the quality assurance sector is calling for just that: quality.

"We as an industry need to be accounted for with the way we are releasing unfinished products," says Testology CEO Andy Robson. "We wouldn't be happy if we watched a film and the last 30 mins were missing. So why do we think it is acceptable to release games that don't meet the quality level consumers expect?

"We should have a standard where no Class A bugs are released in a product along with Class B bugs, whether functional or LOC issues. Class C bugs are always going to be in games, but don't affect the experience, so we could be more lenient."

Loreto Sanz Fueyo, director at Universally Speaking, agrees: "QA and localisation need to come together to offer standard guidance to help make the process smoother. Establishing these standards and integrating them deep within development would save time and costs, ensuring a higher quality product and happier players."

Pole To Win's senior QA director Katsuri Rangan observes that platform holders already have compliance standards, although even these can vary – particularly on mobile.

"The game-changer lies in the enforcement of a standard across platforms," he says. "The Android submissions team could be more strict about enforcing their standards. Apple seems to be a tougher platform to release on, as they tend to be stricter on the specs and quality of apps."

> **Why release games that don't meet the quality level players expect?**
> *Andy Robson, Testology*

Many QA and localisation firms hold themselves to their own, self-imposed standards, which should help devs improve the quality of their games.

"An experienced partner will be able to walk you through each step of what sometimes appears to be a daunting process," says Sanz Fueyo. "However, by the time that guidance is requested, it is often too late to make a significant difference. Speak to your partners early on and often.

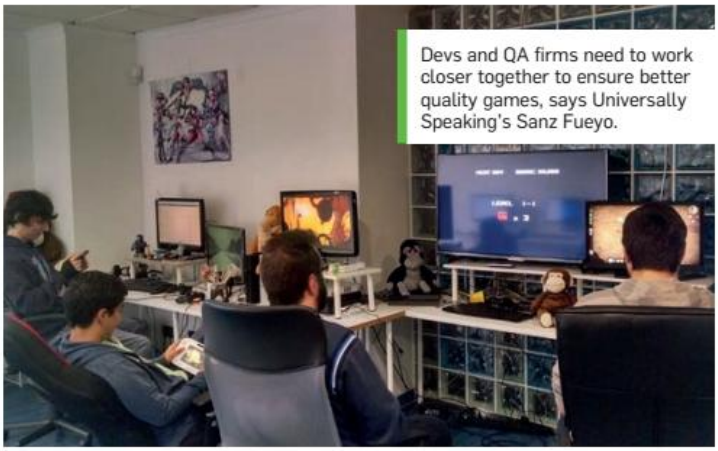
"When we are working on test plans there are a set of common elements we look out for. These form part of

our internal checklists, which range from 'simple' debug options to design elements and their impact in testing time. We repeatedly see similar issues we're used to resolving ourselves or recommending the best course of action to studios before we can begin."

We asked experts about the standards they believe the industry should hold themselves to. But Robson says that there needs to be consequences, not just compliance.

"We should have a set amount of time – I'd say 144 hours – to test the final build of any game," he says. "If major issues or gameplay flaws are found then it should be failed. If this delays the game by three months or so, then so be it. Games should not be released because marketing says so or the teams get bonuses for meeting deadlines. We all know this goes on and I'd love someone to tell me differently as they'd be bullshitting me.

"It's time for us as an industry to come together and form a process all games have to adhere to. Then we'll release quality games that our consumers are happy with. Isn't that why we all make games?" ■



Devs and QA firms need to work closer together to ensure better quality games, says Universally Speaking's Sanz Fueyo.

WHAT SHOULD BE INCLUDED IN INDUSTRY STANDARDS?

QUALITY ASSURANCE

Live game release candidate update testing

Putting out consistent high-quality updates and patches is integral to a live game's success. Issues reported by QA should be considered against both the monetary impact of the issue going live and the need for a fix, while considering the impact a poor update has on brand integrity.

Kirstin Whittle, VMC

Standard test management tools

Usage of systems such as TestRail and DevTest in games QA is not as widespread as it should be, with many teams still relying on clunky, static Excel-based checklists for executing test cases and tracking coverage. Wider adoption of test management will bring increased agility in test planning, efficiency gains in test execution, and enhanced reporting and metrics.

Marc Kent, Testronic Poland

'Transparent-box' testing

Having some basic development abilities within the team – such as downloading repositories, compiling the build and launching/debugging as devs would do – would enable a high-quality approach for testing, allowing 'to the line' bug-reporting in cases such as null pointers, asserts or exceptions. You could even have remote sharing to let the developer take control of the debugger to handle the situation themselves.

Emilio Cazorla, Lollipop Robot

Closed beta testing

Conducting closed beta tests on production environments provides publishers and developers the data measurements required to validate whether their game is ready for a successful day-one multiplayer release, and subsequent iterations when applicable.

Kirstin Whittle, VMC

A platform-independent 'best practices' guide for finding usual bug suspects

It would be nice to have a list of common items to evaluate, like "Has your game's GUI has been tested in every possible resolution?" and so on.

Emilio Cazorla, Lollipop Robot

Maintaining up-to-date design documentation

With options for collaborative documentation from Google Docs, free or cheap wiki creation tools, and licensed software such as Confluence, it's easier for a large team to keep track of all changes in a single, up-to-date format. This provides a fast, reliable way to bring new or replacement staff, remote workers and vendors who join the project partway through up to speed.

Edd Buffery, Testronic London

LOCALISATION

String files to contain additional information and context

Information such as where the text appears, who is speaking to whom, and the name, age and gender of the character makes it easier to provide a better contextual bridge to localisation.

Orad Elkayam, MoGi

A standardised file format for in-game text

This is would lower costs relating to file parsing and negate the requirement of supporting tons of different formats in each and every tool along the localisation chain.

Katsuri Rangan, Pole To Win

Adopting MQM (Multidimensional Quality Metrics) and DQF (Dynamic Quality Framework)

The widespread adoption of these modern frameworks would allow the games industry to create a common understanding of the issues and the way of measuring quality, all together bringing a positive effect on everyday operations.

Fabio Minazzi, Keywords Studios

Ensuring source file/language is clean and consistent

Fixing errors, confirming the meanings of sentences and having a source file that is messy and with errors will cost more time and might transfer problems into the target language as well.

Orad Elkayam, MoGi

Moving away from strings housed in offline files

Translation shouldn't be performed in isolation and all translators – and key stakeholders – should be able to collaborate with the translation effort. Offline files do not allow translators to easily view other languages and share queries on strings. Secondly, if changes are made to source text whilst translations are being worked on then these have to be manually tracked which creates a greater potential for error.

Katsuri Rangan, Pole To Win

ALTERNATIVELY...

Nothing

Every firm has a different way of working, planning, executing and so on. Homogeneity is not only boring, it's dangerous. Companies should actually try to think outside the box before standardising, before simply doing what their neighbours are doing. The more standards are put in place, the less room there is for innovation, learning and doing things differently.

Mathieu Lachance, Keywords Studios

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THE EVER-CHANGING WORLD OF LOCALISATION

MoGi Group CEO **Orad Elkayam** discusses the routes to success in different markets around the globe

Few businesses move as quickly or in such great leaps as the video games industry.

In turn, the demands and development of localisation move as vehemently as just about every other facet of gaming.

Great localisation requires a number of things working in tandem: you need experienced, native linguists who combine a comprehensive understanding of the localisation process with the best tools and an unbridled passion for gaming. Of course, their work also needs to be subjected to rigorous quality assurance procedures.

CHANGES AND CHALLENGES

The biggest change we have seen from the early days of localisation to its modern form is simple: time.

The two keys to successful game localisation are speed and accuracy. This need for speed is a result of a literal game-changing landscape and the advent of a number of elements that necessitate a constant supply of localisation.

All the extras that surround the game – marketing collateral, social media, support and so on – require constant collaboration between the player support, community management and localisation sectors to create and publish engaging community updates, respond to player queries and develop other promotional material. It's another reason why it's so important that the translators have an in-depth knowledge of the game, the knowledge base and the terminology to ensure the translations are consistent with the game's style.

The style guide enables us to preserve the spirit of each game across the different languages.

Localisation teams must understand and absorb the spirit and tone of the game as much as possible in order to embody it in their translations. This is absolutely essential for international success.

Another major challenge we face is that the majority of games are not built with localisation in mind. Whilst this is totally understandable, given that it is extremely difficult for developers to know if their product will be successful enough in certain markets to warrant such investment, it can sometimes cause issues with both implementation and testing, which in turn puts increasing pressure on the deadlines we work to.

> **Localisation teams must understand and absorb the spirit and tone of the game as much as possible in order to embody it in their translations.**
> *Orad Elkayam, MoGi*

When it comes to the most in-demand languages, especially in Europe, it's difficult to look beyond French and German. While, statistically, we are seeing a rising need for services in Latin American Spanish, Brazilian Portuguese, Russian, Turkish and Chinese and Korean into English, these two are likely to always top the pile for three main reasons.

Firstly, both France and Germany are countries where players have a strong preference for gaming in their native language. Secondly, they have strong gaming economies – players are more than willing to splash out on a good game – and extremely large gaming populations. Thirdly, French and German localisation opens up not only the native countries, but other regions where the language is spoken, enabling developers to crack multiple markets with one language.

WHAT THE FUTURE HOLDS

There are too many constraints and external influences – government policies, national economies, technological capabilities – to definitively identify where the next localisation explosion will take place. What's more, where developers target next is dependent on the genre, design and nature of their game.

What is certain, however, is just how appreciated quality localisation is by the people who matter most: the players. This has been the predominant driving force behind the rising importance of localisation, and it's a rise that is set to continue.

The need to integrate new technologies into the localisation process to aid efficiency and increase speed is going to be a major factor in the next few years.

Companies will need to adapt and move with the times to keep pace with the need for ever-faster localisation, especially for material outside of the core game content.

Continued education on the importance of localisation, the processes involved and what constitutes high-quality localisation – as well as the crucial role played by CAT tools – is also part of spreading awareness of, and appreciation for, what is an essential element of modern video game development. ■

Orad Elkayam is CEO of MoGi Group, which specialises in video game localisation and customer support.
www.mogi-translations.com

HOW TO PREPARE YOUR GAME FOR LOCALISATION

Localize Direct's Michael Souto offers advice on how devs can ensure their game is ready for translation

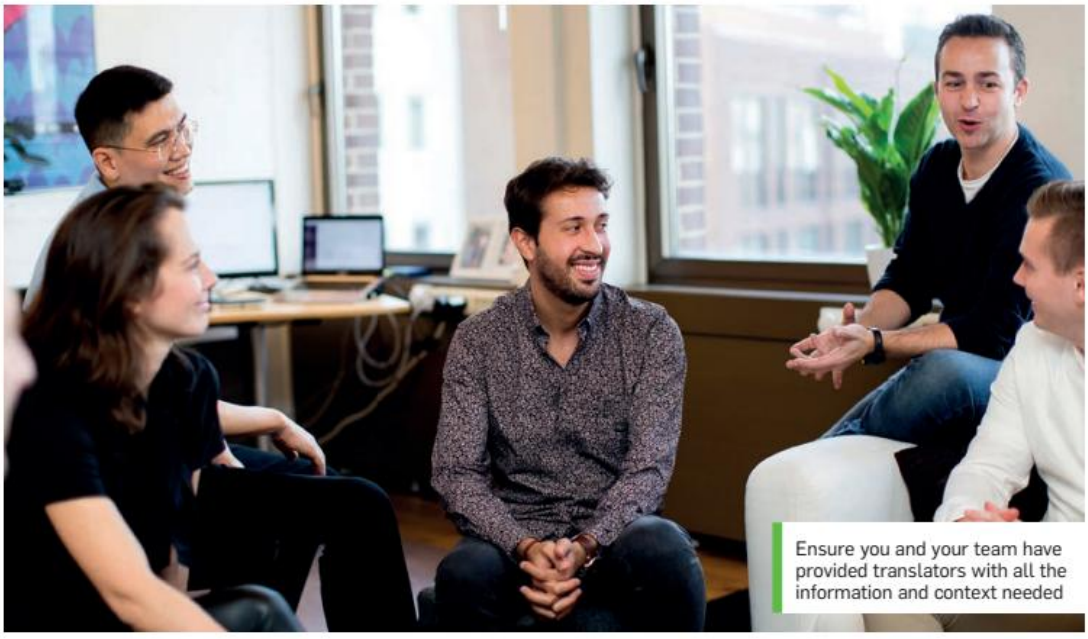
We work with many developers and regularly encounter the same issues when looking to localise content. The need for a streamlined and risk-limited localisation phase is an important one. The aim of this piece is to highlight some of the 'usual suspect' issues when it comes to preparing your text for localisation.

As a first step, your chosen provider – and ultimately the translators involved – need information. A one- or two-page doc should provide the game's name, platforms, target languages, a game overview, target demographic and age rating.

Supporting assets are also of great use to the translation team: video, code, screenshots, images of the UI and – if it's a sequel or update – the previous translations, which are the key to consistency with your last release.

We also need to understand what kind of limitations or rules the text in your game may have. For example, do you feature "\n" line breaks in strings? Do you need to have a space before the "\n"?

Are there certain characters you cannot support? Does an ellipsis "..." need to be three separate full stops as opposed to the auto character that can be generated? Is everything in [square brackets] to be left untranslated? Can variables be moved within the string? For example: "(Pay [x] coins to buy a hammer?)". Can the [x] be moved or is this hardcoded?



Ensure you and your team have provided translators with all the information and context needed

WHAT ARE YOU TALKING ABOUT?

Context information is vital. It's very easy to misinterpret the usage of text when provided in isolation.

An example of this is the word 'fire'. Is the usage "to fire" as in to shoot a weapon? Or "a fire" as in the thing you use to cook food? The translation could be different and if used incorrectly will instantly jar the gameplay experience. Another example is 'watch': is this to view something, or the thing on your wrist?

Try to avoid creating "this is for all platforms" strings. Platforms will have varying terminology: you may have "Press X" in your console version but you'll want "tap" or "touch" in your mobile version. An additional string is required. I also suggest that you store platform-specific strings in a separate location to generic strings.

Don't mix your dialogue subtitles in with in-game text, and please ensure that they are in the right order as this will greatly help the translators understand the context of what's being said. And provide additional information on those subtitle strings; who is the line delivered by? Who is it directed to? Is it one person or a group? Who is in the group? What gender is the speaker?

> **Context information is vital. It is very easy to misinterpret the usage of text when in isolation.**
> *Michael Souto, Localize Direct*

As a rule, it's a good idea to translate as much as possible. But there are exceptions, as you may have certain elements that are key to location and so want to keep as is. If your game is based in Mexico and you have a bar called the Tres Estrellas, renaming it the Three Stars wouldn't be natural.

On a similar note, if a player is to "go to the Tres Estrellas bar and hit the informant with the martillo", will they know what a martillo is? Sounds like a drink, right? In this case it makes sense to localise: "Hit the informant with the hammer." So if you can, then you really should translate weapons and other objects.

We're regularly asked to keep translations to the English text length. This is pretty much impossible in many instances. When designing your game, you should budget for a minimum 30 per cent additional space to accommodate the translated text. Also, consider scaleable text and scrollable text elements. By all means, do provide translators with a max character length – but this should be based on available space and not just the English length.

In summary, preparation is key. Do take the time to prepare your strings for translation; time spent preparing will save time and effort later on. Ensure that you view your text through the players' eyes and translate as much of the game as you can. Now, where was my martillo? ■

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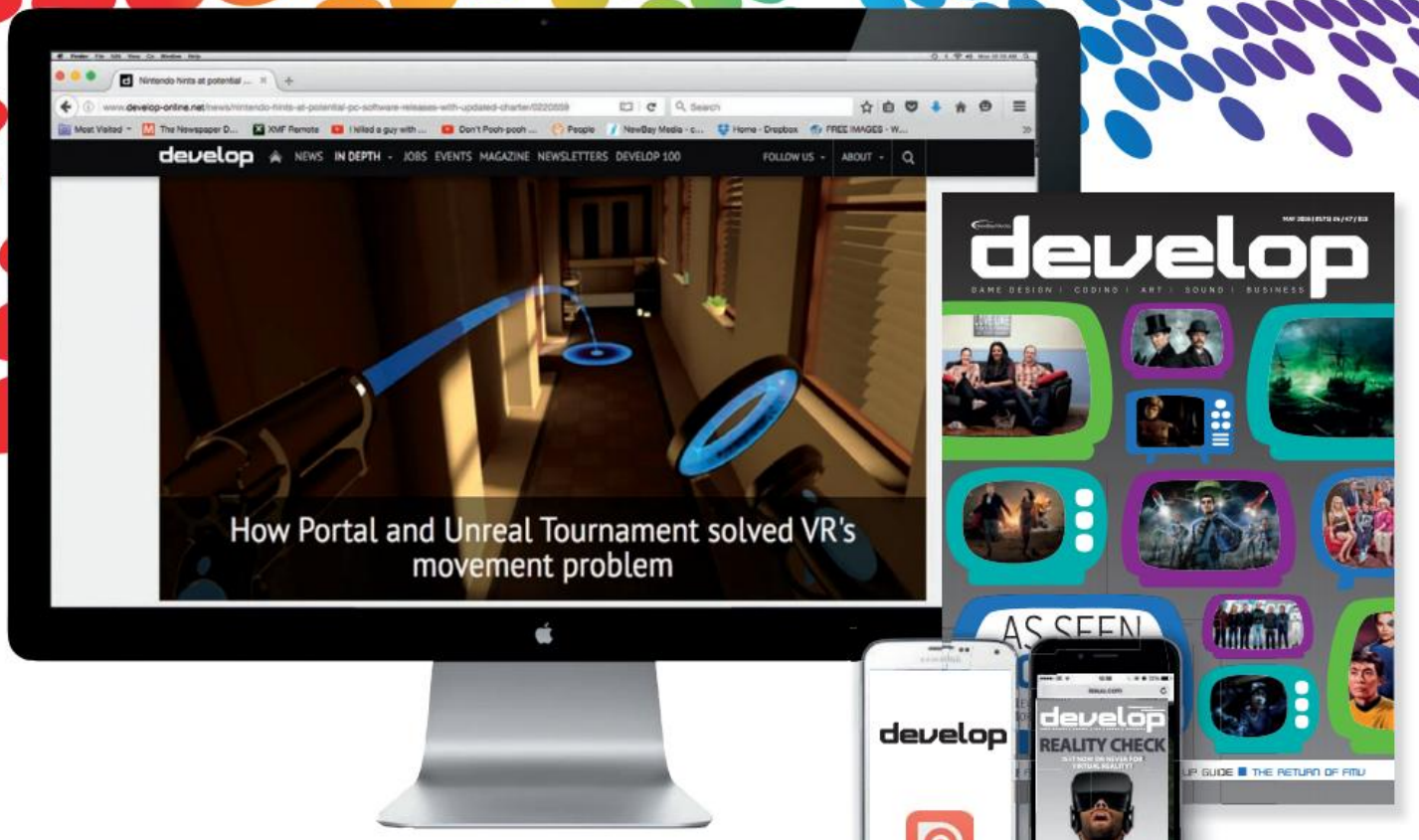

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THE £6M GUIDE TO CROWDFUNDING

Planning to enter the scary world of crowdfunding? We collect the best advice from Playtonic's Andy Robinson, ICO Partners' Thomas Bideaux and Revolution's Charles Cecil – whose projects have collectively raised more than £6m on Kickstarter – at this year's Interface on positioning your campaign for success

Playtonic's Robinson (*above*), ICO Partners' Bideaux (*right*) and Revolution's Cecil (*far right*)

DON'T DO MOBILE OR FREE-TO-PLAY

"There are a couple of types of games that don't work at all on Kickstarter," Bideaux warns. "Mobile games, for lots of reasons, don't ever work as a whole category on Kickstarter, including Vita games.

"The other thing that doesn't work – there are a couple of exceptions – is free-to-play. There are a number of reasons for that: the community that is used to crowdfunding tends to be people who buy their games and understand that business model. Another reason is that when you offer something that doesn't exist, actually making a promise that you'll get a cape or $50 worth of in-game currency is pointless, because your player hasn't experienced the game yet – they don't know if it's a good deal or not.

"The couple of exceptions in free-to-play that worked were collectible card games, where they were offering booster packs, starter packs – things that for people who play card games have more of a fixed value, so it's easier for them to project.

"Those are the two big red flags; if it's mobile and/or free-to-play then you are really making it hard on yourself. 99 per cent of those probably don't work."

DON'T EXPECT TO FIND AN AUDIENCE

"Kickstarter and all those platforms are not discovery platforms," cautions Bideaux. "Very, very few people actually go on Kickstarter in the morning and say: 'What am I going to buy today?' But they do go: 'Oh, I heard about *Yooka-Laylee*, that sounds awesome, I love *Banjo-Kazooie*' or 'I heard about the new *Broken Sword*, I love those games, I'm going to back it'. They hear about it outside of those platforms.

"What's very important and what a lot of people fail to do is understand that they are just platforms – they are just means to an objective, they are just technical support. There are lots of things where you have to do the work yourself.

"You need a community. Projects that fail probably don't have a community, and projects don't build out to them – you usually don't start with a campaign, it's something that occurs over the life of your project. You've built something, either recently or not, and then the campaign is part of that process. That's a very, very important thing – a starting base from which to launch your company."

AIM HIGH – BUT NOT TOO HIGH

"You're setting yourself up for a fall if you overpromise and don't believe that you can deliver that," Robinson says. "You shouldn't promise things you can't deliver later on.

"It's wrong, because from our perspective it's our studio's first game, even though the team has a lot of pedigree. It's our first game and a new IP, so everything we do through the crowdfunding, we are also thinking about the long-term future of the studio and the game's success to give us a foothold, basically."

Bloodstained began its campaign without a demo, but was spurred to success by the involvement of former *Castlevania* producer Koji Igarashi, Playtonic's Robinson believes

KNOW WHO YOUR BACKERS ARE...

Cecil recalls: "For *Broken Sword 5*, a lot of people had come saying 'We want it to look classical', so in designing it we very much went down the route of making the gameplay fairly classical but making it feel modern in terms of the graphics. That was really, really important, because that's what people had said they wanted. But then you better deliver on it.

"When we announced it, we said it would take six months, because that's what would've happened if we had written what we originally said we were going to. I really worried when that six months came up and people started asking where the game was, because it was actually going to take another six months after that. I thought very carefully and rewrote the release and expected a response, and in fact the response came in two categories: one lot said 'Well, we didn't believe you in the first place, take your time' and the other said 'Well, we've been waiting five years, so we really don't mind waiting another six months'.

"It was quite clear in that moment that the one thing about dealing with a large community is to not waiver. When you say something be absolutely clear sure that that is the route. Even when people are haranguing you for some kind of response, wait until you're clear on what your route and position is going to be."

...AND TREAT THEM WITH CARE

"It becomes a spectrum," Bideaux says of your backers. "If things go well, these people will be your best advocates. If you make mistakes – and you're bound to – you will get people who, if they get hungry, will get way angrier than anyone else. There's a sense of ownership. They want to be treated specially. There's also that phase where the game's out and you have two communities – backers and the people that play it. The backers still need to be treated specially. It's something you need to account for. You need to have dedicated messaging and relationship to those people."

Robinson agrees: "You need to be completely mindful of backers' sense of ownership. You have to be very mindful of doing right by them, because rightly or wrongly, they have invested emotionally and feel that they've put something on the line to make this happen. As long as everyone in the studio is aware of that and you don't slip up, it won't be a problem."

Revolution's Cecil offers his own experience: "When we have our team meeting, if there's just one backer that has a problem, and it's legitimate, our community manager will raise it and we will brainstorm how to solve it.

"We assume that the people who contact us probably are the hardcore representatives, and there are many more people who have that feeling.

"If you can, it's worth addressing the one or two people complaining about something, because it almost certainly goes much higher than that."

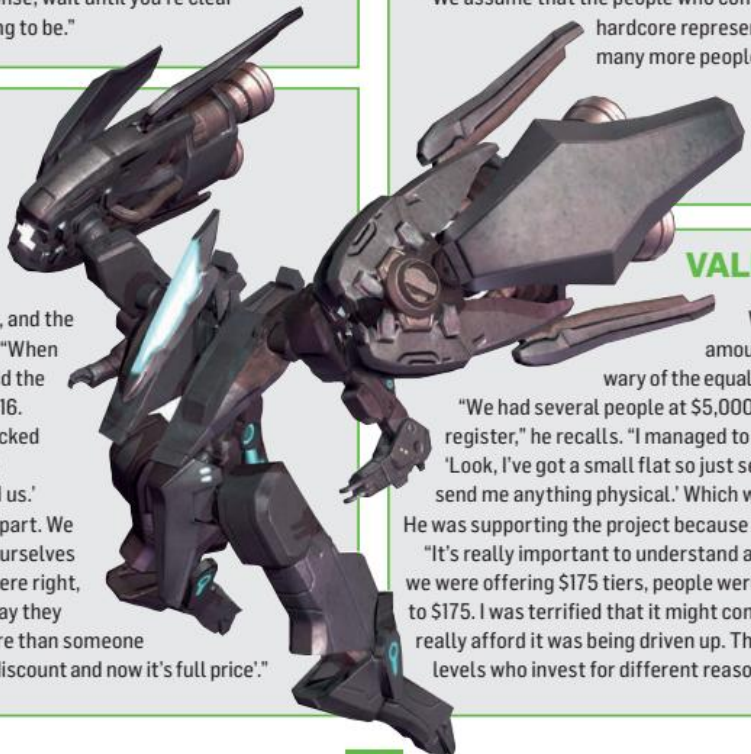
BEWARE OF SALES

Bideaux offers a word of caution over launching your crowdfunded game outside of Kickstarter.

"To get *Strike Suit Zero* (*pictured, right*) on Kickstarter we had a limited number of versions of the game at $15, and the normal version was $20," he explains. "When we launched the game on Steam we did the usual 20 per cent discount, so it was $16.

"We had a number of people who backed it at $20 who got really angry with the studio, saying: 'You lied, you scammed us.'

"To be honest, it was clumsy on our part. We didn't anticipate it. We didn't project ourselves to that notion over the pricing. They were right, but they were also very bitter in the way they were expressing themselves. Way more than someone who might've lost $4 to 'Oh, you did a discount and now it's full price'."



VALUE STRETCH GOALS

With backers able to invest varying amounts of money, Cecil advises devs to be wary of the equally diverse stimuli behind fans' input.

"We had several people at $5,000 and one of them didn't even register," he recalls. "I managed to get hold of him, and he said: 'Look, I've got a small flat so just send me the digital stuff, don't send me anything physical.' Which was kind of insane, but wonderful. He was supporting the project because he loved the project.

"It's really important to understand and price accordingly, as well. When we were offering $175 tiers, people were really motivated to move from $100 to $175. I was terrified that it might come back and someone who couldn't really afford it was being driven up. There are people at the different levels who invest for different reasons and have different motivations."

LAUNCH WITH A DEMO

Armed with little more than a brilliant idea? Playtonic's Robinson warns that you might need to develop your concept further to attract backers.

"First thing I said when I saw [John Romero's *Blackroom* Kickstarter] was: 'He hasn't got a gameplay demo'," he recollects. "I couldn't believe it.

"50 per cent of having a successful Kickstarter campaign is having a great idea that people want to back and pay money for, and the other 50 per cent is convincing them that you'll make it.

"That's the advice I would give to anyone who is doing crowdfunding: show the team – who is the team, and why do they have the pedigree to make this game and bring it out? What have you done so far? Show the game.

"But it's not a consistent thing – there are certain genres of game where you don't need a gameplay demo. You look at the 2D games like *Mighty No. 9* and *Bloodstained*, where they very transparently hired a company to mock up fake screenshots, which people were fine with. Obviously for that sort of game, people were satisfied it was a good representation of the sort of stuff you would see in that sort of game."

Bideaux also calls out *Bloodstained* and *Mighty No. 9*, but argues that those titles remain exceptions to the rule.

"For a 2D game you need the demo, as well," he retorts. "It's true for everyone. Unless you have the chance to be famous, you need a demo.

"It's so important now – you need to be able to show you have something that runs. Even demos can be fake – you can make something that looks good very quickly.

"Romero's campaign is interesting because it was an outdated version of how crowdfunding works. Three years ago, campaigns were different, and two years ago, they were different, and last year, they were very different. The production values of the page, the video – all those things have changed dramatically."

HAVE A SEPARATE MARKETING CAMPAIGN

A Kickstarter in itself can be a good way of raising awareness about your game, but don't expect it to replace traditional marketing.

"We had a marketing campaign for about a month or so before the Kickstarter began," Robinson reveals of *Yooka-Laylee*. "We were obviously in a position where was a lot of interest from all the media to do that sort of thing, so we partnered with IGN to reveal our lead characters, which was something which I kind of wished for from the beginning. The rest of the team was like: 'No, let's throw everything out.' But we purposefully left that for something that we could build a campaign off right before the Kickstarter.

"One of the things that we're doing that may or not work, that we might have come back on us, is that we went out with an initial prototype that was about three months of work and were determined to have game to show and show everything we had. But, after that, we decided we were going to spend some time and the next time we showed the game it was going to be final, more akin to a traditional game PR marketing campaign.

"Hopefully at that time backers will be at the stage of 'Where is it? Where is it?' and will be super pleased, rather than us perhaps taking some of the shine and magic off of it and showing off wireframes and environments for six months and everyone getting a bit bored."

Playtonic ran a marketing campaign for a month before it launched *Yooka-Laylee* on Kickstarter

LEARN FROM OTHERS' MISTAKES

While there is much to be learnt from the headline-grabbing crowdfunding campaigns, Bideaux highlights one notorious example of what not to do.

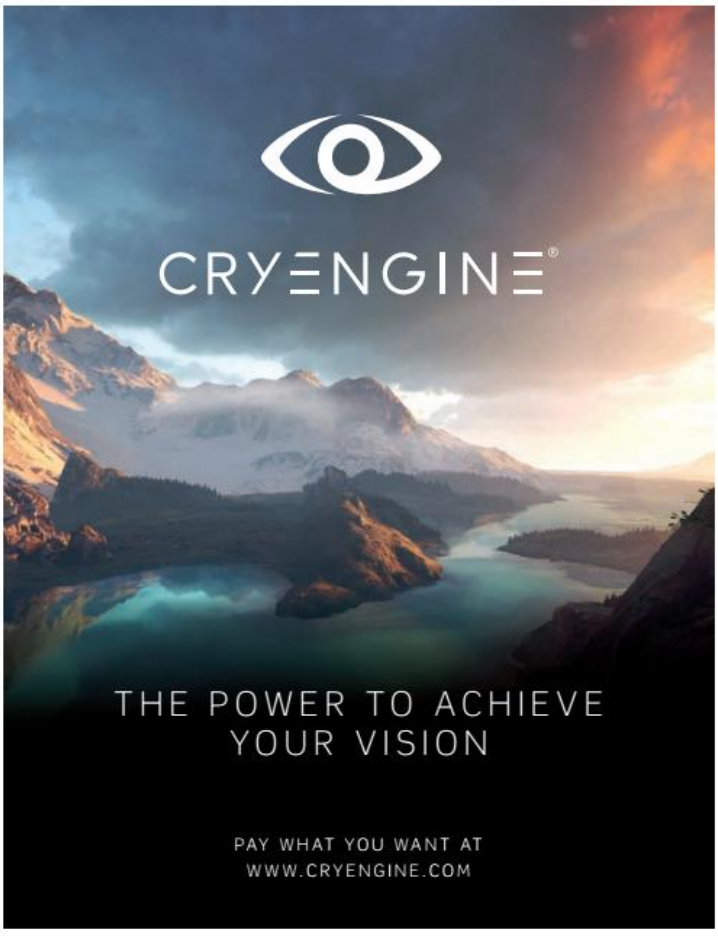
"*Shenmue 3* is one of the worst campaigns ever," he slams. "The only thing they did right was having the *Shenmue* name, and showing it at E3. 99 per cent of the work was done for them.

"It's a horrible campaign. *Bloodstained*'s fantastic, it's a good example. *Shenmue* is something that people should shy away from replicating.

"If anything, it's good to look at a mid-size campaign, one that raised into the $100,000s, rather than the big ones, because the big ones usually have a brand power that can bend things their way.

"There's one number that's very scary: the median size of a campaign is $10,000. If you raise more than $10,000 for a video game on Kickstarter, you are in the higher half of projects. It's something that is often ignored. There are fantastic projects that don't raise millions. There's an emotional scale that needs to be kept in line as well. It's still very difficult to raise north of $100,000."

Cecil says that being honest with the community for *Broken Sword 5* softened the blow when the game took an extra six months to develop



SWIMMING AGAINST THE CURRENT

Future Games of London MD and co-founder **Ian Harper** explains why the Hungry Shark studio doesn't believe in the 'Starbucks coffee rule'

Location: London, UK
Best known for: The *Hungry Shark* franchise on mobile (including various spin-offs), *Pool Bar Hustle* and *Little Raiders*
Web: futuregamesoflondon.com
Email: biz@fgol.co.uk
Twitter: @FGOLnews
Facebook: www.facebook.com/futuregamesoflondon

Hungry Shark World hooked more than 10 million downloads in its first week

FGOL launched just a year after the iOS App Store, and has followed its transition from premium to free-to-play business models. What has your experience of the changing mobile market been like?

When the App Store first came out you could sell a game for a dollar and that was it. Inevitably it's got more complicated. When Apple introduced in-app purchases, the games started coming straight over from Facebook and it was pretty clear free was where the mass market was going.

For us making the *Hungry Shark* games, it's always just been about accessibility – making sure as many people can play it as possible. So free-to-play was a no-brainer. It needed to be free to get out and get that kind of scale.

We don't subscribe to the 'Starbucks coffee rule'; that seems to be taken as almost a mantra for the industry. But we believe it's possible to have a gaming session that lasts longer than the amount of time it takes to get a coffee. What we've learnt is that you don't have to be the same as what everybody else is doing. You can be different.

We don't have energy mechanics in the game, they just get in the way of the experience for us. If we want as many people to play it as possible, telling them they can't play the game doesn't seem to be a good way of enabling that. We've just always steered our own path on those kinds of things, going as broad as possible, and it seems to have worked quite well.

While you say you don't subscribe to conventional mobile mechanics, your largest audience is in the East – where those mechanics are more widely accepted than in the West. Have you adjusted your games to reflect this?

We've done some on *Hungry Shark Evolution*. We've done things like testing different price points, for instance. But, really, no – it works pretty universally worldwide.

It's more about the packaging and the messaging. The Korean, Japanese and Chinese markets are very competitive due to having such strong local publishers; so people in China are used to receiving their games in Chinese with great customer service and marketing. If you don't have that and you're just coming in straight in English with no effort being made, it's hard to get through to them.

Since it was founded in 2009, FGOL has grown from a team of five to 55. How else has the studio changed?

We used to make a game in six months, and now it's two years.

The number of people in the teams has exploded.

It's got a lot more complex, there's a lot more things to manage, but otherwise the core of it is pretty much the same: finding something that's really appealing and engaging and bringing it to the world.

It's such a huge audience that we have access to now, and it's a real privilege to work in this day and age. I remember the days when you had to target specific markets individually and it's really amazing to see how many people around the world can be playing a game at the same time.

You were acquired by Ubisoft in late 2013. What difference has that acquisition made to the studio's operation?

It's different for me. I don't have to fly all over the world doing business development myself. There's lots of great people in Ubisoft who can help facilitate on that.

For most people in the studio it doesn't make too much of a difference. We're an autonomous studio, we get to make our own creative decisions and Ubisoft is there more as a scale and support mechanism.

Obviously, Ubisoft are fantastic on the marketing front. We've been able to leverage that, to some extent. It helps us get cross-platform; it's a lot easier having this infrastructure of Ubisoft behind us. If we want to go to a particular market in China, we don't have to do everything in-house here ourselves, there's people who can help around the world to make that happen.

With the bigger publishers moving into the mobile market by snapping up smaller studios such as FGOL, is it harder for start-ups to find success?

It's just the way of the world. Large publishers are always going to look to acquire great IP and put it in their portfolio.

The advantage of a large publisher is you have the portfolio effect; you can cross-promote from all of those, and you've got the recognised consumer brands.

Mobile has such a low barrier to entry, anybody can go in there and take a punt if they have a great game idea. ■

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DEVS OF TOMORROW TO MEET AT BRAINS EDEN

Cambridge-based games festival is a chance for studios and aspiring developers to network

The UK's largest student games festival is returning this month.

The event is Brains Eden, which has taken place in Cambridge since its creation in 2008.

From June 24th to 27th, 31 teams from 19 universities across Belgium, the Netherlands, Spain, France and the UK will gather to meet with professional developers and compete to win a two-day game jam.

Deborah Hayden is partnership and enterprise development officer at Anglia Ruskin University, which organises the event every year and has two teams enrolled in this year's edition.

"It's an opportunity to gain access to the very best upcoming talent from around the world, as well as an opening to interact with universities to form direct partnerships," she enthuses.

"Brains Eden provides more than your usual job fair, as studios will send staff along throughout the weekend to help mentor teams in the game jam.

"This provides these studios with a chance to see how each person works, on their own and as part of a team, so they can see the talent on the screen and not just in a portfolio."

> **Brains Eden provides more than your usual job fair.**
> *Deborah Hayden, Anglia Ruskin University*

Since Brains Eden launched eight years ago, the festival has helped secure 35 internships and eight full-time jobs for companies including Sony, Frontier and ARM.

"This year we have seven sponsoring organisations possibly looking to hire from the event, including Guerrilla, PlayStation First, ARM, Frontier and Jagex," Hayden says.

The core of the four-day event will be the game jam, during which teams will have 48 hours to create a game around a surprise theme.

For students taking part, Hayden has one piece of advice: "Come prepared."

"Students should arrive for the weekend with up-to-date portfolios, and should spend some time researching the companies attending.

"As well as the studios getting to meet the teams, the event gives students a unique opportunity to get in front of the industry and show them what they have got – so make the most of it." ■

BRAINS EDEN 2016 PARTICIPANTS:

- University of East London (Two teams)
- Howest University (Two teams)
- University of Westminster
- NHTV (Three teams)
- University of Alicante
- Southampton Solent University (Two teams)
- University of Greenwich
- University of Hull
- Anglia Ruskin University (Two teams)
- University of Bedfordshire
- Buckinghamshire New University
- Norwich University of the Arts (Two teams)
- University of the West of England (Two teams)
- Glasgow Caledonian
- University of Northampton (Three teams)
- London Metropolitan University (Two teams)
- Pole 3D (Two teams)
- Leeds Beckett University
- University of Gloucestershire

MOVERS AND SHAKERS

The latest high-profile hires and promotions

CREATIVE ASSEMBLY

GARETH EDMONDSON is Creative Assembly's new COO, after spending more than four years as CEO of Thumbstar Games. He also previously served as MD at Ubisoft Reflections.

He replaces **MARTIN SERVANTE**, who becomes senior VP of strategy, business planning and development services at Creative Assembly's parent company, SEGA.

"The prospect of working for one of the most respected studios in the business, with such tremendous development calibre, is a huge privilege," said Edmondson.

DISRUPTOR BEAM

The *Star Trek Timelines* and *Games of Thrones: Ascent* developer has appointed **JENNIFER RAMCHARAN** as VP of people operations.

"Joining Disruptor Beam was an opportunity that I just couldn't pass up," said Ramcharan. "From early on, its culture and hyper-focus on people really made this company stand out."

CLIMAX STUDIOS

Industry veteran **GARY WELCH** has been promoted to art director at Climax.

He has held the position of studio animation director since 2011. Before that, he worked as senior lead animation at EA for over 13 years.

"I am very excited to take on this role, especially with all the new and varied projects we have coming up," Welch said.

THE FOUNDRY

The Foundry has appointed **JODY MADDEN** as chief customer officer. She previously held different positions at the company, such as COO and head of production.

Madden stated: "I'm looking forward to bringing our customers closer to our business and being part of The Foundry's growth story along with the rest of the exec team."

PRODUCER OF THE MONTH

This month, we speak to Curve Digital's production manager **Sophie Rossetti**

Tell us about your career.

I began as a producer at BeefJack, creating bespoke branded games for integrated marketing campaigns. It was a fantastic start-up with a great team.

I then moved on to Curve, where I have progressed from associate producer to producer and onto production manager in two and a half years.

I've seen the company transform into one of the biggest indie publishers in town, and have loved being along for the ride so far.

How did you end up at Curve?

I wrote to Curve, telling them it was fate for us to work together. Bold, no?

Basically, at university I'd made a little physics-based water platformer that in some loose way resembled Curve's title *Fluidity: Spin Cycle*, and just thought that was too big of a coincidence to pass up.

They took me on board when they were still developing their early rounds of console conversions and just starting out plans for *Stealth Inc. 2*.

From there, I am proud to have been a part of hundreds of console submissions and dozens of titles published in the past couple of years.

Describe your typical working day.

There's no such thing. We usually begin with a team catch-up with all the producers and QA, and then move onto game-team specific scrums.

Afterwards. my duties range from communicating with platform holders and setting up new titles to prioritising and grooming bug backlogs, meeting new indie partners and facilitating fun office activities like game jams.

What are the biggest challenges you're currently facing?

The producers are in various stages of facilitating about eight projects, so my biggest challenge is ensuring resources are allocated correctly and everyone is on top of things.

We always work towards feature and content parity across all platforms for our titles, so it can be a fun and interesting challenge to see how certain PC-specific features can be translated effectively to console.

What advice would you give to anyone looking to forge a career as a producer?

If you can prove that you can bring together a team, and create something fun – or at the very least, playable – with a limited schedule and budget, that will go a long way. ■

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TOP OF ITS LEAGUE

As Nordeus goes through a phase of substantial growth, HR manager Milena Dulanovic tells **Marie Dealessandri** about the studio's job openings and why great art is the key to mobile success

Nordeus was founded in 2010 in a windowless room of a Serbian shopping centre. Six years later, the studio has 140m registered users for its mobile football management title *Top Eleven*, which Nordeus claims has been played in every country in the world.

Nordeus now has studios in London and Dublin, as well as its Belgrade headquarters where most of its staff – around 160 people – are based.

The studio significantly strengthened its teams recently, hiring a new head of art in the form of Daryl Clewlow and reinforcing its recruitment team with a new chief talent officer, Ana Mitrašević, and senior talent acquisition manager, Katrina Mosson, who worked for the likes of NaturalMotion and Activision.

More opportunities should be available at the studio in the coming months, HR manager Milena Dulanović reveals.

"As the gaming industry tends to be very dynamic, our hiring efforts need to be agile as well," she observes. "That means our recruitment is a process that changes and evolves all the time. In general, our recruitment needs always reflect our internal game development phases.

"At the moment, with the invaluable guidance of our head of art, we are focused on levelling-up our art discipline. This is because we believe that the highest-quality art is absolutely essential to creating a triple-A mobile gaming experience."

To support this philosophy, Nordeus is hiring art directors, senior technical artists, VFX artists and senior animators.

"The success of *Top Eleven* has raised the bar incredibly high for us, and it is a standard we intend on keeping," Dulanović vows. "For us, it's always about making the best games possible."

The football sim is not the only ace up Nordeus' sleeve, as the HR boss promises new games later in the year.

"Aside from *Top Eleven*, we're busy working on exciting new games that we think will be super fun to play for players everywhere."

Nordeus is working on new games in addition to *Top Eleven* (*far right*), says HR manager Milena Dulanović (*right*)

To bring these new titles to life, Nordeus is also looking for new talent in game design, marketing, product management and UX design.

"We are always working on keeping the right balance between hiring promising young talents and experts with invaluable industry know-how," Dulanović reveals. "We know from experience that both approaches and perspectives are essential for a successful game production process."

NORDEUS UNITED

In order to maintain this successful game production process, Nordeus follows a simple, but effective, mindset: 'All for one and one for all.'

"The trust that we have for one another means that each employee irreplaceably contributes to who we are as a company," Dulanović says.

"Not only do we work in small teams that are empowered with creative freedom, we also operate with a very flat structure. This means that we all compliment each other's skillsets and adapt very quickly to the tasks at hand.

"The well-being of our people is one of our highest priorities. There is an array of benefits we offer all our employees: unlimited learning and development opportunities, attractive bonus schemes, full healthcare coverage, flexible working hours, access to the latest technology, delicious food and beverages in all our offices, and gym memberships. We also have a great relocation plan for top talents interested in positions based in Belgrade."

> **Keeping the right balance between hiring promising young talents and experts with invaluable industry know-how is essential for a successful game production process.**
>
> *Milena Dulanovic, Nordeus*

Devs interested in working at Nordeus, or anywhere in the development industry, should clearly demonstrate their experience and passion, Dulanović believes.

"Candidates shouldn't be afraid to share their projects and ideas — whether professional or personal — with us," she encourages.

"It's important to remember that these don't need to be of the highest level of production, only that they demonstrate the applicant's skills and knowledge. If they can show us their interests and passions, then that's even better."

CHANGING TIMES

With virtual and augmented reality gathering momentum, Dulanović thinks now is the right time to be get involved with the games industry.

"The opportunities and experiences these new technologies will create for developers and players is immense," she comments. "VR has the potential to become a truly immersive experience, whilst AR has the potential to drastically expand experiences on mobile."

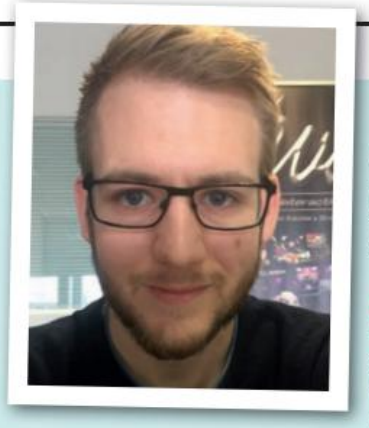
One way Nordeus wants to improve the mobile experience is by targeting hardcore gamers, at a time when the majority of mobile developers remain focused on casual players.

"Very soon, the evolution of mobile devices will open up the possibility of creating triple-A games for this unique platform," Dulanović forecasts.

"It will be very challenging but, I feel that, when done right, it will change the landscape of the gaming industry – and we're very excited to see that happen." ■

GET THAT JOB

This month: PR and Marketing Coordinator with Wales Interactive's Ben Tester



What is your job role?
My role consists of a wide range of tasks including media/client relations, community management, social media marketing, copywriting, event planning, promotional design and QA testing.

Being part of a small-to-medium independent studio means I'm responsible for all these key activities, which for me is much more interesting than being focused on just one particular skill.

What qualifications do you need?
From my experience, qualifications specific to PR or marketing are not always a necessity. In fact, I had zero experience in that field before I was taken on. What I did have was a background in design, a keen interest in the games industry and, most importantly, strong interpersonal skills.

Writing a formal press release or a marketing plan are skills that can be developed on the job, but if you don't enjoy talking to people and about games, you'll have a tough time building the relationships needed to succeed in this role.

People with experience in journalism tend to do well here and you'll often find some game marketers actually started their career in journalism. Whilst it's never essential, it's advantageous if someone can show examples of articles or blogs they have written, or demonstrate they are adept at creating interesting media content.

When you are interviewing someone, what do you look for?
Someone who communicates effectively, both orally and in writing, and who works well in a team. This role requires you to interact with people from different backgrounds with different interests and at different stages in their career, so it's important to find someone who can engage with any audience.

> **Games marketing is an area unlike the rest of development, as you're never tied down to just one task, enabling you to develop many skills.**
> *Ben Tester*

I would also be looking for someone who has the confidence to approach people at events, but also comes across as an approachable person themselves. Enthusiasm for the industry is a must.

What opportunities are there for career progression?
Our studio is four years old and being the first and only to have this position has meant my job has evolved as the studio has developed.

Opportunities will vary depending on the size and specialism of the company, whether it be an independent or triple-A studio, a publisher or a PR agency.

Why choose to follow a career in your field?
Games marketing is an exciting role to be in right now.

It's an area unlike the rest of game development, as you're never tied down to just one task, enabling you to develop many different skills.

You'll often have the opportunity to travel to different game events, representing your studio and meeting new people to talk about the games you love. ■

SKILLS AND TRAINING

This month: Gabrielle Kent, deputy head for games development, talks about the many games-related courses on offer at Teesside University

At Teesside University's School of Computing, students can learn the ropes of all core aspects of development at both undergraduate and postgraduate levels: programming, design, technical development, art, animation, indie development and concept art.

"As one of the first universities in the world to teach games development, we have built up an excellent reputation and impressive custom-built facilities," says deputy head for games development Gabrielle Kent.

"We do not run media courses with games modules tacked on to them; all of our courses are focused towards industry requirements and designed by veterans in consultation with games studios."

Lecturers in games-related courses at Teesside have experience at the likes of Sony, EA and Ubisoft – the latter being a key partner for the university.

"Our staff have all worked in the industry and maintain relationships with studios around the UK and US," Kent explains. "We have strong relationships with local studios, and partnerships with many more that lead to placements and graduate jobs. A large number of companies visit to discuss careers and recruit directly from our end of year show, ExpoTees."

Kent is also the director of Animex, the uni's annual festival during which students have access to masterclasses and workshops from studios such as Valve, Naughty Dog and Blizzard.

Students have access to a large range of facilities, including seven specialist games labs featuring developments tools and software, such as Unreal and Unity, as well as a dedicated games lounge, motion capture labs and a fully equipped post-production suite and soundstage.

Overview: Teesside University offers undergraduate and postgraduate courses in programming, design, technical development, art, animation, indie development and concept art.

Address: School of Computing, Teesside University, Middlesbrough, Tees Valley, TS1 3BA
T: 01642 342 631
E: scm-enquiries@tees.ac.uk
W: tees.ac.uk/schools/scm

"We run a number of group development modules which have earned high praise from industry," Kent details. "These modules realistically simulate the development cycle, placing students into specific roles, including leads, with staff acting as producers. The experience prepares students well for life in games development studios." ■

RECRUITER **HOT** SEAT

Studio head **Patrick Gilmore** provides precious tips on refining your CV and reveals how to enter the Amazon Game Studios family, which currently has over 100 positions open in the US

What differentiates your studio?
First, we are obsessed with customers. This of course includes players, but in the industry today it has grown to include broadcasters and viewers. Second, we are creative pioneers within a fascinating Amazon sandbox that includes Twitch, Lumberyard, AWS and more. Third, we want to build relationships with customers that last for a very long time.

We see so much opportunity for invention, which is what makes us special: an extreme focus on customers and spectacular ambition, mixed with considerable determination and awareness that we are just getting started.

How many staff are you looking to take on?
Right now, we have over 100 positions available, from engineers and marketers to artists and technical program managers, and we're going to continue to add more.

I want to raise the ceiling for people who are already at the top of their game.

What perks are available to working at your studio?
In Orange County, we just moved into a new studio space, which is amazing. It has beautiful common areas and space for ad hoc meetings or brainstorms. Our architects designed around the things people do both on and off work, so they thought about our twice-a-week poker nights, our board gamers, the beer club that shares rare brews once a month; they even designed a huge kitchen and outdoor barbecue area outside of security, so families could visit, meet up for lunch and enjoy the space together.

What how can devs tune their CV to get an interview with you?
With our eagerness to invent, we need people who are optimistic, tenacious, and have the drive to get things from 'not done' to 'done'. On an intern resume, this might be a club or hobby project, outside of assigned work, that got across the finish line. For a more established developer, it's often a feature or personal passion that became a difference maker for a product.

> **Risk-taking in interviews establishes the candidate as someone who is going to bring a strong point of view to the organisation.**
> *Patrick Gilmore, Amazon Game Studios*

Who is the best interviewee you have ever had?
Interviewees who show some insight into Amazon often get an edge. Our games are free-to-play, and I've interviewed a lot of product managers who were really focused on making money. My philosophy is that the game has to be fun for everyone, whether they spend money or not.

I sat down with this attitude right at the start of the interview. My first question was: "Free-to-play games are often driven by a sort of adversarial relationship designed to get the customer to spend. How have you reconciled that in the past?"

The interviewee replied: "We want our community to be as big and vibrant as possible, so we care about people who just play as much as about people who decide to pay."

The words 'You're hired' went off in my head like a firecracker. She was taking a risk in not leading with how she was going to earn a ton of money, but focusing on how she was going to make the experience fun.

I absolutely love risk-taking in interviews – it shows personal philosophies can be as important as a job, and establishes the candidate as someone who is going to bring a strong point of view to the organisation.

What advice would you give for a successful interview at your studio?
Read the Amazon leadership principals. They are readily available online, and we take them very seriously.

No matter how well you prepare, we will want to see how well you think on your feet, so will ask follow up questions until we get to something that doesn't seem like you thought of it ahead of time.

If a candidate doesn't pass, we often ask whether they might be appropriate for a different role. Be rested. Be open. Be sincere and confident, and focus on the proudest achievements of your past.

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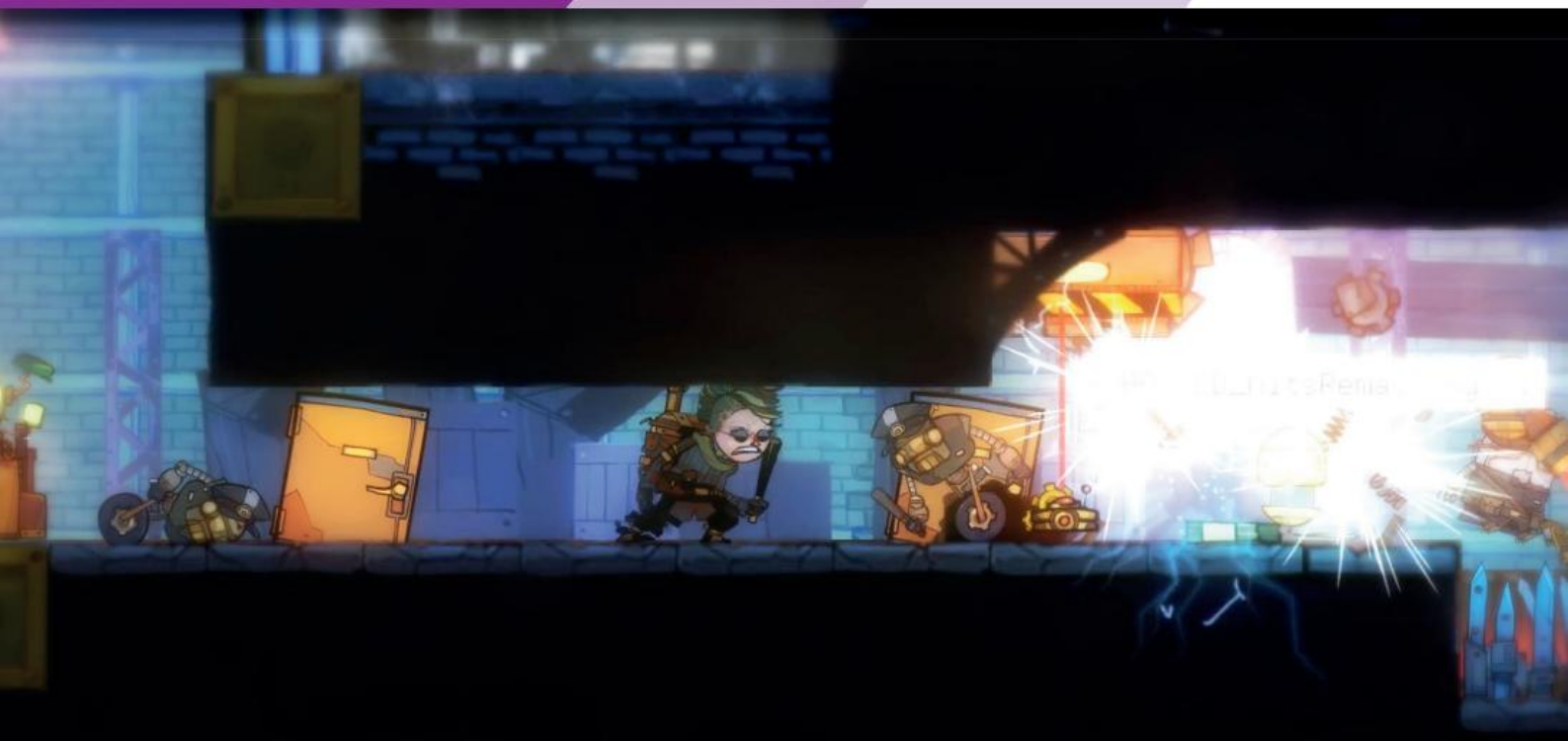


RANDOM MECHANICS AND THE ART OF BEING **PREDICTABLY UNPREDICTABLE**

The creators of XCOM 2, The Binding of Isaac and The Swindle tell **Matthew Jarvis** how procedural generation and random gameplay elements can be used to build timeless titles

The first video games were defined by repetition. Each wave of *Space Invaders* adopts a set formation. Every *Pac-Man* level is the same grid. And, well, just about everyone born after 1980 can tell you exactly what *Super Mario Bros*' 1-1 looks like.

As times have changed, so has technology. There are (probably) more pixels in Nathan Drake's sweat patches than the sprawling fields of Hyrule in *Ocarina of Time*. It's not all surface, either: behind the scenes, the ability to procedurally create in-game content has led to an explosion in wholly unique playing experiences.

"Games have been gradually swinging away from concrete, scripted content towards player-orchestrated content," observes Garth DeAngelis, senior producer for *XCOM 2* at Firaxis. "It doesn't mean there isn't a place for compelling linear content, but game designers are thinking more systemically overall than the prior few decades."

Dan Marshall initially designed all of *The Swindle*'s environments by hand – a method he says made the indie stealth title feel "flat" and "repetitive".

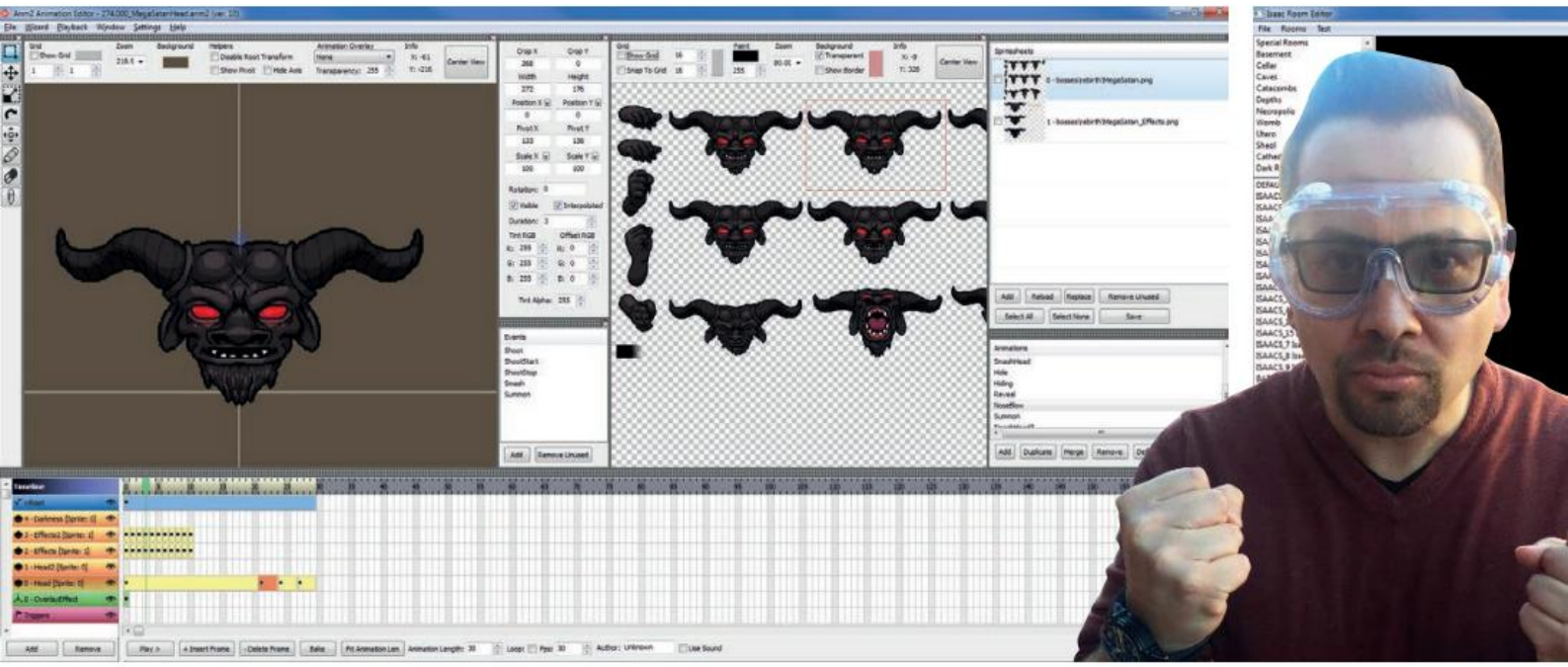
After randomising the creation of the game's buildings, "the scope of gameplay that was coughed up was immediately more exciting, both as a designer and for the gamer".

"Random generation is one of those things that can really set games aside from movies and books in terms of the content they provide," Marshall enthuses. "They all tell stories in their own way, but procedural generation allows us to do something more unique, more interesting.

"As the tech progresses we're going to see more and more games going down this route – imagine an *Uncharted*-alike where the locations aren't exactly the same every time, or a *Skyrim* with randomly-generated quests and stories. We're scratching the surface right now, but there's exciting stuff to be done."

DIVERSITY OF DEVELOPMENT

Procedural generation in games isn't a new invention. As far back as the late 1970s, primitive random mechanics were being employed to generate ASCII or tile-based environments (often dungeons). In fact, the strong



influence of one of these games – *Rogue* – lives on in the recent revival of the 'roguelike' genre, led by modern touchstones such as Edmund McMillen's seminal 2011 top-down shooter *The Binding of Isaac*.

"Everything in *The Binding of Isaac* is generally randomised, aside from specific room layouts that were designed for more precise structure, but even those elements have tons of random variables within them," McMillen explains.

"During development we created a suite of tools specific to the game to facilitate the different tasks including a pool editor, animation editor, room editor and configs editor," expands producer Tyrone Rodriguez. "The latter was unused because we found it quicker to edit XML files with simple text editors, adding new attributes on the fly.

"The pool editor allows anyone on the team to pick a set of items with the chances of being encountered – weights – the rate at which weight is getting decreases, when player sees it and at what weight the item is considered removed.

"Our room editor allows for placement of the entities and to visually set the room parameters. Each room is part of a configuration group – per level, special room and so on. There are different parameters that a room can have including shape, difficulty and weight. Originally, the room editor was made based on the Flash config layout; it uses one layer of entities for all grid, enemy, effects and pickups."

While not all games opt to implement procedural generation to such an extreme, the concept can be employed to varying levels to inject a level of surprise into a player's experience – or even to help smaller devs with the burden of asset creation.

> **The point of being random is to design a game that can be replayed infinitely without growing stale.**
> *Edmund McMillen*

"*The Swindle*'s player characters are basically like a Mr. Potato Head – we randomly assign a race and gender, and pull out an appropriate head, and set about slapping hair or glasses, moustaches, whatever onto it," Marshall details. "They're all animated using Spine, and share animations, but I can flip graphics in code really easily, making a near-infinite supply of characters.

"You'll notice all the characters wear gloves. This is because they're thieves but, more importantly, it was so they can all share 'hand' graphics, and there was no need to draw loads of extra hand assets."

XCOM 2 similarly utilises random elements to create its humans-versus-aliens battlefields on-the-fly.

"We have the procedural map system, which ensures you will not see the same exact layout twice," DeAngleis reveals. "This system blends the handcrafted artistry of *XCOM: Enemy Unknown*'s maps with what we call a 'Plot and Parcel' system. The plot is the quilt and the parcels are the patches that get sewn in.

"Both components have procedural cover elements that get loaded in at map initialisation. The streets, corners and time of day are all mix-and-match. On top of that, enemy spawn and behaviour is shuffled. The sub-objectives are also procedural, and can show up in dozens of locations. When you stir all of this together, you have a pretty replayable system."

Whether procedural generation is the foundation of a game, or used sparingly to spice up specific elements, basing even a minor factor on virtual dice rolls can significantly extend the time a player spends with a title.

"It's a great way to increase gameplay and value to the player without excessively increasing budget or development time," Rodriguez urges. "There is a certain amount of research and discovery that must be done ahead of time and it all needs to be planned, but the benefits outweigh the negatives, such as having to make more custom tools, algorithms or other development requirements."

McMillen summarises: "The point of the experience being random is to design a game that can be replayed infinitely without growing stale and move away from linear designs which are the more common and familiar route for developers."

LOSING (JUST ENOUGH) CONTROL

By its very nature, basing game design elements on chance can lead to unpredictable results.

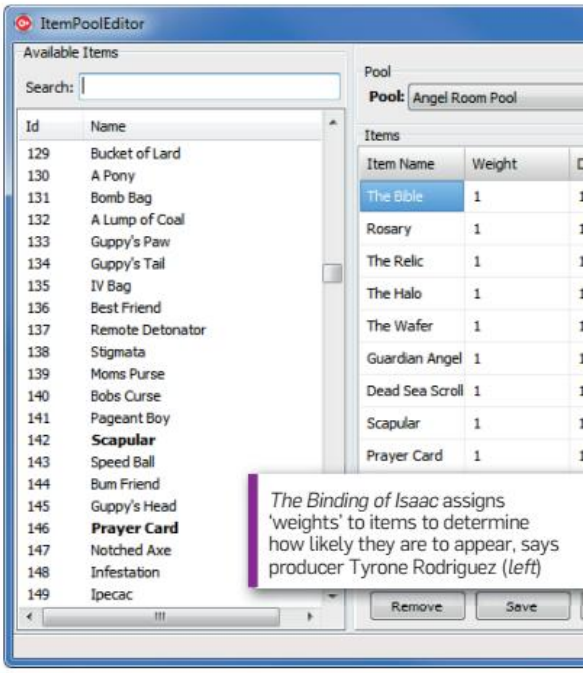
"No paper design ever accounts for sure-to-come changes through playtesting, and those increase tenfold in a procedural game," DeAngelis warns.

"*Isaac* can have a non-deterministic number of items per floor so they can't be pre-generated," Rodriguez offers as a specific example. "The undefined behaviour of the player and the sequenced events versus parallel ones made it really difficult to keep the outcome stable.

"One bigger problem was the item pool system, because the player can walk in any direction and visit a different sequence of rooms each time – thus, picking items that makes others less common or inverse. We tried our best to keep it stable for the rest of the run, but it's still not perfect."

Marshall agrees that accounting for every outcome is a near impossibility.

"The main problem is never really being able to see everything the



The Binding of Isaac assigns 'weights' to items to determine how likely they are to appear, says producer Tyrone Rodriguez (*left*)

game's capable of doing, and the can of worms it opens up," he says. "With proc gen, everything's held together by random numbers – which means things can go really wrong very easily."

Despite this monumental task, there are steps that devs using random mechanics can take to better their odds.

"We overcame the change requests by rolling up our sleeves, playing the heck out of the build, and sharing experiences," DeAngleis explains. "Then, design would return to the code and execute changes based on feedback."

Marshall echoes DeAngleis' advice that putting the game and its components to the test is vital.

"Balance is all about playing the thing a billion times, day-in day-out," he insists. "It's testing and re-testing, seeing if something's not quite working and tweaking the algorithms accordingly.

"The key to making sure stuff doesn't crop up too much is to just have a massive pool to draw on. The list of potential names in *The Swindle*'s name generator is colossal; it's possible you'll get the same character twice, but it's massively unlikely."

McMillen faced a similar issue of proportion when developing *The Binding of Isaac*, due to the title's "literally thousands of possible hand-made rooms, each with an amazing amount of changing elements".

"Random elements were balanced by structuring the enemies and room layouts by difficulty, as well as scaling the game up as the player progresses," he reveals of his solution. "Basically, structured chaos.

"The chances of running into the same map layout are near impossible. If you factor in the 13 playable characters with different stats, the near 500 items and their combinations, then no playthrough will ever be the same."

MAKING IT UP

The rise of procedural generation has allowed players to tell their own tales. Every experience is unique – a far cry from the cookie-cutter narratives of old. Despite this, scripted elements can still hold value for devs.

"All gameplay mechanics are suitable for randomisation," begins McMillen. "The only ones that really don't benefit from it are linear story-driven ones. Scripted or traditional narratives aren't that interesting when it comes to game design. There is a story to *Isaac*, but the actual experience tells of a much deeper and more thought-provoking theme."

The Swindle originally involved a plot, which didn't make it into the final game. Marshall agrees that random mechanics are not a 'one size fits all' replacement for carefully crafted narrative.

"Devs need to learn what works and what doesn't with this kind of game," he advises. "In the same way the best iPhone games are the ones designed around the touchscreen input, the best proc gen games are going to be the ones that fully embrace the experience and don't try to tack on elements that just don't work."

DeAngelis highlights the increasing marriage of scripted narrative beats with the freedom of random elements as a potential route forward.

"Hard-scripted content can seem more memorable and wow-inducing but its value is mostly consumed after one viewing," he says. "But if there are designs and systems that empower the player to create their own wow moments through mechanics, then the game's value skyrockets, and the player develops a more powerful attachment.

"Then, what if you can blend procedural or open-ended system with spectacle through cutscenes? That's most exciting to me: to see procedural designs fuel high-production value moments. *Grand Theft Auto* has shown masterful examples of this, when you find yourself wandering the city streets doing whatever is in your head at that moment, and then suddenly, you have a well-designed, scripted mission like a bank heist to opt into when you so choose."

> **The best proc gen games fully embrace the experience and don't tack on elements that don't work.**
> *Dan Marshall*

THE FUTURE IS UNPREDICTABLE

While procedural generation has been gathering momentum among smaller studios for years, and proven its popularity by fuelling some of the indie sector's biggest names – from *Minecraft* to *No Man's Sky* – it remains a concept largely disregarded by bigger developers.

"Indie devs have kind of taken procedural generation and gone: 'Look what we can do with it'," says Marshall.

"Seeing what triple-A studios do with it, with all their money and power, will be really interesting."

DeAngelis expects the growing presence of unpredictable mechanics to herald a new wave of timeless titles.

"I don't think this is a fad at all," he predicts. "It will only get more exciting.

"For sure, there are developers interested in using procedural elements in ways that haven't been implemented before.

"It's less about technology and explicit tools, and more about the systems being designed and the engineers that construct them in creative ways to empower the player to have experiences that can go on forever." ■

DEVELOP'S TOP TIPS

PROCEDURAL GENERATION

Experts in leaving game mechanics up to chance offer their advice on implementing random elements

Hand-design several levels, and analyse what makes them tick. Work out what the 'flow' of your game is. Only then will you be able to write an algorithm that can create good levels.

The crucial aspect of what makes a level fun is often not immediately obvious to the eye. Having a fundamental understanding of how the fun in your game works is critical to writing a good generator for it.

The balance between generated content and hand-designed content is key. Great proc gen games usually have significant parts which are hand-designed. A fully computer-generated level will often look quite 'dry' to a human – confusing their foolish brains by scattering around bespoke content is a good move.

Ian Hardingham, Mode 7 Games

We focused on making maps feel hand-crafted by adding small details and story to each building block.

Seth Sivak, Proletariat

Build your map using modular areas that are optimised for each type of random mission, then tag them with useful info so that the game knows where to spawn each mission and your agents know how to use/find them.

Tomas Pelak, Joint Custody

If you're using Unity, consider using animation curves for visually editing probability curves.

James Coote, Crystalline Green

Find algorithms to make your proc maps flow smoothly beginning to end. Proc gen is not a valid excuse for unbalanced gameplay.

Tom Coxon, Bytten Studio and Chucklefish Games

Make your generation easy to change and debug. Use a seed and make it easy for non-programmers to change it to allow for easy testing. Split your generation into sub systems; this makes it easy to swap out parts of it so, for example, your tutorial can use a custom made layout. It also makes it a lot easier to put in completely new areas into the game.

Make each subsystem in your generation use its own random number generator seeded with a value from a random number generator that runs on the base seed. This allows you to change something in a subsystem without affecting the reproducibility in the rest of your subsystems. This comes in handy when fixing bugs and fine-tuning the behaviour of each part.

Alexander Birke, Out Of Bounds Games

Start with Perlin noise and terrain map generation – it's a good way to learn and easier than you might think. Also, read up on how the original *Elite* game generated an entire universe from a bitmap.

Chae Gribben, Box of Lights

Players imagine 75 per cent chance as three successes out of four, not 75 successes and 25 fails. Cheating your random within a single game will prevent your player from feeling disadvantaged. Perception of too many 'unfair' consecutive fails can make the player turn away from your game.

Edgar Parente, Rogue Factor

Animation curves are great for all sorts of things. For example, mapping values from in to out.

Rupert Key, Snowman Scuffle

Generating random set of similarly distanced points is hard, but often a Jittered Grid is good enough.

Finn Nielsen, Mechanic Miner

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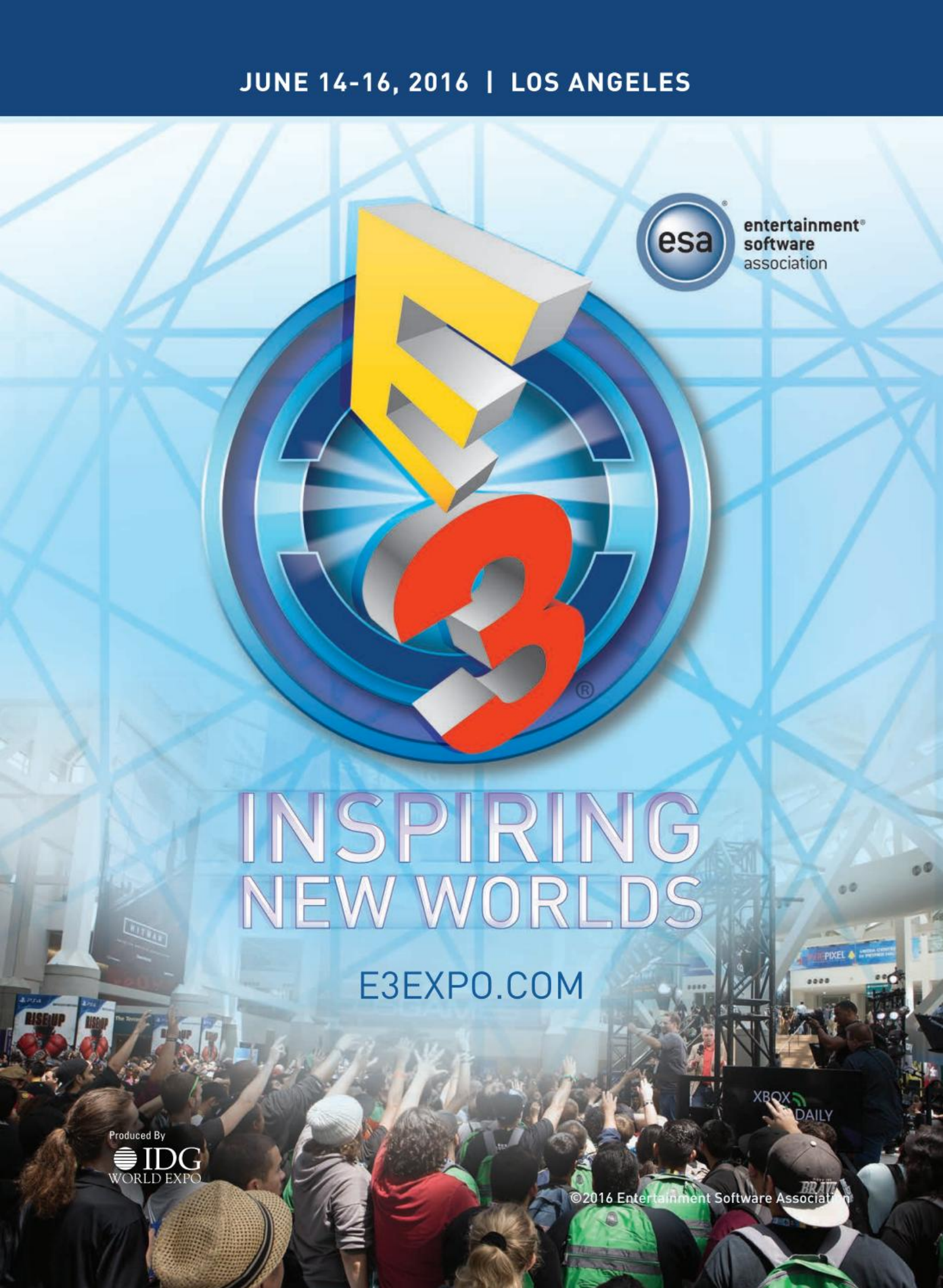

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HEARD ABOUT

SOUND VIBRATIONS AT DEVELOP: BRIGHTON

John Broomhall looks forward to hosting more audio excellence at this year's Develop conference audio track

This year's audio track at Develop: Brighton will celebrate and explore four outstanding game audio productions: *Until Dawn*, *Quantum Break*, *Assassin's Creed Syndicate* and *Star Wars Battlefront*.

In today's game audio environment, its easy to become distracted by the 'how' of what we do – process, technology, tools. Whereas considering the 'why' – why we might use sound, music and dialogue in certain specific ways – is what's really fundamental to creativity.

Thinking about why sound adds to the experience and what the player *needs* to hear, rather than what they *can* hear, leads us towards notions of true sound design – not the making of individual sound effects but the design of a soundscape with a distinct sonic signature and intent.

SOUND ALL AROUND

Seeing the wider creative picture of game audio can lead to inspired ideas: how audio can add to the overall gameplay experience, or how it can define and demarcate the game world.

For instance, the way in which audio content creates sonic identities and aids navigation in Victorian London boroughs in *Assassin's Creed Syndicate*, including the use of dialect and traditional folk songs, is fascinating.

> **Think about why sound adds to the experience and what the player *needs* to hear, rather than what they *can* hear.**
> *John Broomhall*

Until Dawn clearly provides rich pickings for creating emotional havoc, given a thoughtful and considered approach to learning from and applying interactively some of what we experience in film horror – as well as conceiving and delivering new game-specific ideas.

After all, we all know that as well as literally describing or 'giving voice to' sound emitters and events, audio can be used in entirely non-literal ways, purely to drive players' emotional responses, maybe even working against visuals to create ambiguity.

Using sound as a true 'storytelling' device is more commonplace for our brethren in film, whose standard tools do not signpost them towards a literal approach. '3D' sound systems in games are a wonderful blessing, but consider how they prescribe our approach when perhaps we should subvert them and augment them for dramatic outcomes.

POWER AND PRODUCTION

This is about the quality and power of ideas in sound design rather then how clever your tech is – tech is just a means to an end. Some of the most historically powerful applications of sound to picture have deployed technology which in hindsight seems positively medieval compared to the sophisticated virtual sound tech we have inside our game applications – even on mobile – not to mention what's in our studio armory.

All that said, there are some 'production issues' many continue to grapple with. This 'power of ideas' for sound design cannot fully mitigate sheer ineptitude and ignorance in scheduling and budgeting – nor for that matter can it allay fundamental ignorance about the huge bang for buck of well-conceived, well-implemented and properly resourced audio content in games. ■

John Broomhall is a game audio specialist creating and directing music, sound and dialogue **www.johnbroomhall.co.uk**

SERVICES SPOTLIGHT

PLAYER RESEARCH

Develop finds out how the Brighton firm uses real players to assist studios in identifying game design flaws early in development and why more devs need to learn which type of testing they need

Games development can be a very insular process. Teams share ideas and progress within the studio, but the target audience very rarely sees the game until in it's in a near final form.

By this point, it's often too late to change the title's mechanics or structure if something doesn't resonate well with gamers. That's where user testing comes in.

"Game design involves making a series of assumptions about what the player will find enjoyable," says Player Research founder Graham McAllister. "It's the job of user testing to test these assumptions and provide evidence as to why each succeeds or fails. The results are very specific and actionable, typically identifying barriers to enjoyment and solutions to resolve these issues.

"For the games we work on, some of the issues we've managed to identify and resolve have led to millions more players getting through the tutorial and deeper into gameplay, as well as improving monetisation.

"By involving real players throughout a game's development, we aim to better understand and improve all aspects of a game's design before release.

"Our approach stems from our backgrounds in psychology and human-computer interaction, and considers everything from effective tutorial design through to the big questions like: 'Why do players engage?' By following well-proven processes from science and industry, we help developers deliver the game they want to make."

User testing can often be mistaken for something that comes under the umbrella term of QA, but McAllister stresses that the two "couldn't be any more different". While QA focuses on technical errors, user testing aims to identify design errors and is required from day one of your project.

"There's a very low understanding of user research in the games industry," McAllister adds. "Some may have heard of specific methods such as playtesting, but many developers call that focus groups – which, again, is a completely different method of eliciting player feedback. Some developers may also have heard of UX, but that's another confusing term as there are least six different UX roles that would apply to game development – studios often don't know which type they need."

User testing is often confused with QA and playtesting, but – unlike those methods – should be implemented from the beginning of development

OVERVIEW: User research and playtesting designed to deliver actionable feedback
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EMAIL: info@playerresearch.com
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TWITTER: @playerresearch
FACEBOOK: facebook.com/playerresearch

PLAYERS COME FIRST

Player Research aims to raise awareness of the need for their discipline, largely through working directly with studios to demonstrate the benefits. A lack of investment in user testing is, the firm argues, something of a failing for the games industry.

"Nearly every other industry would use a user-centred process to improve its products or services," says McAllister. "The video games industry seems to be the last to take advantage of this.

"Nearly every game made could be delivered quicker, saving budget and offering a better player experience, but first developers have to know what user research is and how a user-centred process would help them."

Now in its fourth year, Player Research is rapidly growing in order to service more developers. Last year, the firm doubled its headcount to eight and fully expects to be able consult on as many as 70 games throughout 2016.

The firm has also moved to larger offices in central Brighton, enabling the team to build a large-scale playtesting lab that can host up to 12 players at a time.

McAllister adds that Player Research is also keen to share its findings: "We've just launched our first products – a new style of report aimed at designers and developers. Previously our final reports would only ever be seen by the client, but now we're setting our own research questions and making the reports available to anyone in the games industry."

> **There's a low understanding of user research in the games industry.**
> *Graham McAllister*

The first report is a teardown of the user experience in four leading base-builders: *Clash of Clans*, *Boom Beach*, *Game of War: Fire Age* and *Star Wars: Commander*. While all these titles offer similar features and gameplay, some are more engaging than others, and Player Research's 255-page report goes into depth on the reasons why.

A report on the user experience of *Hearthstone*, Blizzard's hugely popular card-battler, is currently in the works.

"Our hope is that these UX teardowns will help developers bring best practices into their own game at the design stage," says McAllister. "We're also excited about VR/AR playtesting, and we're exploring the possibility of opening up branches in other territories." ■

The develop Post-Mortem

RATCHET AND CLANK

14 years, three generations of hardware and countless innuendos after it first appeared, Insomniac's lombax-meets-robot series of action platformers has been reborn on the PS4 – with a silver screen debut to boot. Studio head Chad Dezern walks **Matthew Jarvis** through the franchise's history

Left to right: Ratchet's incarnation on the PS2, PS3 and PS4

What *Donkey Kong* is to Disney, or *Super Mario 64* is to Pixar, *Ratchet and Clank* is to Dreamworks.

While the first entry in the 3D platforming series may not have been the very first of its kind, Insomniac's polished PS2 debut stood apart from many of its peers by pushing the genre in completely unexplored directions, melding traditional platforming with third-person shooter mechanics.

"If you go back and play the 2002 original, it was very much a platformer first and a shooter second," recalls studio head Chad Dezern, who joined Insomniac as environment artist in 1998 and has worked on every *Ratchet and Clank* console entry since.

> **For each platform, we try to develop an art style that lets us take advantage of what it can do well.**
> *Chad Dezern, Insomniac*

"In a lot of ways, we didn't know what we were building with 3D third-person shooter mechanics. Shooting in the game is actually quite a challenge. A lot of the enemies can be defeated with just the wrench. When you do shoot something, it's pretty low ammo counts – typically just one projectile at a time, so it's a little slower-paced – and all of the enemy encounters were tuned around that.

"Flash forward almost 15 years and we've evolved our approach to shooter mechanics a lot. Now, we have fluid aiming and we use the right stick a lot more for aiming than we used to; we try to make shooting this fluid, fun experience instead of something you're almost fighting against as you play."

GENERATION GAP

While an increasing appreciation of the right analog stick and player understanding of shooter mechanics has impacted *Ratchet and Clank*'s gameplay under the hood, there's been a far more recognisable change on the surface: the way the games look.

"For each platform, we try to develop an art style that lets us take advantage of what it can do well," Dezern explains. "If you think back to the beginning of the series on the PS2, it was the first

PS2 (*far left*) introduced instanced geometry, while the PS3 (*middle*) improved surfaces and the PS4 (*above*) is all about post effects

time that we were able to use instanced geometry. It was a really big deal to be able to make a single rock and then duplicate it around to make a cliff face. So that's used extensively. It was also the first time that we were able to make a girder from a piece of alien architecture and duplicate that around to make a structure. Suddenly, we had a lot more detail available than ever. Consequently, everything is encrusted with this detail – we were so giddy to be able to add rivets to things and have actual tufts of grass out in the world that we really made it all about making sure that we had clusters of detail all over the environment to lead your eye around."

Four further PS2 titles – *Going Commando*, *Up Your Arsenal*, *Deadlocked* and *Size Matters* – followed in the next five years, before Ratchet and Clank made their leap to Sony's next big console, kicking off the 'Future' series in 2007 with *Tools of Destruction*.

"On the PlayStation 3, for the first time, we could make surfaces that had believable properties," Dezern says of the technical improvement. "Whereas in the PS2 era, if we wanted to make something shiny we had to put a big fake highlight on a texture, now we could make that highlight something that was derived from the real light reflecting just like real highlights in the real world. Pushing into natural lighting was kind of the leap forward we were able to make with the PS3."

2016 has brought with it another rebirth for the franchise, as Insomniac's self-titled inaugural PS4 entry works to retell the story of the very first 2002 game – but with the power of vastly superior hardware behind it.

"On the PlayStation 4, it's been a lot about film-like post effects," Dezern details. "We can really control the density and the dynamic range of the final rendered frame. That's coupled with really grounded natural lighting, which we have now – the lighting is derived from the skybox, which is how it works in the real world. Plus, shaders that are extensively layered so that they respond to everything in the world the way you expect them to.

"Suddenly, we have a look that can get a lot closer to a feature film than we've ever been able to in the past. That's all in addition to the natural progression – there are more polygons on screen every time, things look smoother because we're able to add more facets to every model."

WORLDS COLLIDE

While visual comparisons with feature films is a well-worn games industry trope by now, Dezern's proclamation is more than mere buzzwords. Days after *Ratchet and Clank* landed on TV screens via the PS4, its eponymous cinematic counterpart was being projected in theatres around the globe.

> **On the PS4, it's been a lot about film-like post effects. We have a look closer to a feature film than ever before.**
> *Chad Dezern, Insomniac*

"We were able to work really closely with Rainmaker, the film production company," Dezern reveals. "That means that the game and film started out virtually at the same time.

"We were able to take a look at the very early scripts, even when they were in draft form. The writer for the game and the film is the same person – TJ Fixman – so that was a big advantage; we were able to understand where the film was headed really early on. We had access to models and, in fact, in many cases we would send our model libraries to film production and get them back later ready to be dropped into a PS4 title.

"We did some optimisation here and there and made sure the shaders would work in our engine, things like that, but, ultimately, the model that you see in the film is pretty much the model that you see in the game, especially for major characters like Ratchet, Clank and Captain Qwark.

"In some cases it was a surreal experience where we would create concept art for a location, send it off to the film production company, see the final render in the film and then reproduce that back in the game. It was this really fluid back and forth that was all about trying to keep them as close together as possible, because we really did want the visuals to sync up. We wanted the game and film to tell the same story. We think of it as the ultimate version of Ratchet and Clank's origins. To do that, we needed to match as closely as possible."

WEAPONS OF MASS SEDUCTION

Including handheld spin-offs developed by third-party studios, there has been a new *Ratchet and Clank* game almost every year since the franchise began 14 years ago.

Insomniac has still found time to develop outside of the franchise, creating three PS3 entries in the *Resistance* series, co-op shooter *Fuse* and its first Xbox One exclusive, 2014's open-world *Sunset Overdrive* – with VR effort *Edge of Nowhere* and the GameStop-published *Song of the Deep* on the horizon.

While the titles differ massively – ranging from gritty alt-history first-person shooters to a subnautical 2D 'Metroidvania' – they all embody elements that first emerged with *Ratchet and Clank*, all those years ago. Chiefly, an obsession with providing players with some of the most

As well as sharing a writer with the *Ratchet and Clank* movie, many of the models in the PS4 reboot are almost identical to their silver screen counterparts

extravagant weapon armouries ever seen in any medium.

"Sometimes we discover that our ideas will break the engine after we've already dug in and begun to execute them," Drezen says of the studio's 'bigger is better' approach to virtual armaments. "That's just a part of the process.

"We begin with big brainstorming sessions where we fill up whiteboards with everybody's ideas for dream weaponry. Some of these things maybe somebody's been thinking about over a couple of months or maybe they had an idea driving into work a year ago and now's the time to talk about it.

"Then we narrow down our list of weapons by applying several criteria to those early thumbnail sketches. We ask ourselves: 'Does this weapon have a strategic place in the arsenal?' 'Is it unique?' 'Is it something that we've never seen before – either in our game or in somebody else's?' We ask ourselves about the spectacle factor – is this something that's going to look really cool on-screen and just feel really great to execute? When we narrow down our list to the weapons that have those attributes, then we start to prototype some. We make rough models, we do the bare minimum to see if the weapon is going to play out and actually be fun in the game. We bring it up to the point of being able to actually add ammo and shoot the thing and see how it feels.

> **Sometimes we discover that our weapon ideas will break the engine after we've already begun to execute them.**
> *Chad Dezern, Insomniac*

"We can figure out which weapons really are going to be practical for us to execute. Sometimes with a push – we've had weapons over the years that require extensive effort. The Groovitron means that we need to make unique dance animations for every single enemy, so it takes every animator doing extra work to get it in the game. But, the result is good enough to warrant that, and the fact is animators love making dance animations – it's some of the most fun and creative work that we get to do – so we think of that type of weapon as a really good use of our effort. We tend to have several of those every game.

"Similarly, the Pixelizer, which is new from *Ratchet and Clank* on the PS4: that's a weapon we never could've done previously, because it's converting the render buffer into voxels, and then when you hit or shoot them the physics engine takes over and suddenly you see these colourful pixel-like voxels flying all over the screen. This is very PS4 stuff here, and we certainly didn't know that we'd be able to pull it off when we started. We just had a general idea of: 'It would be really cool to convert your enemies into 8-bit pixels and hear the accompanying sound effect.' From there, it kind of evolved into something that was way more than what we expected when we started out."

ALL 4 ONE

With five games planned for release this year, spanning PS4 and Xbox One, PC and the Oculus Rift VR headset, 2016 is set to be Insomniac's biggest year to date.

Yet, it's clear that the developer is keen to honour its heritage in the franchise that served as the genesis of its modern output.

"Every game we make is an opportunity to stretch our legs, especially in terms of visual fidelity and the amount of activity we can get on screen," Dezern observes. "It's required a lot of development from our tools and technology. Now, we can do a lot of things faster that we flat-out couldn't do back in the PS2 days.

"Tonally these games are all very different and for different audiences, but they're all things that we love. We're big science-fiction fans, we like a broad range of media, and we've been able to bring things like the density of the world and approaching the game with a colour arc that matches what's happening emotionally in the game story from *Ratchet and Clank* to other titles.

"All of these things we delved into for the first time with *Ratchet and Clank*. It really has shaped our studio in many ways, because it was the first time we figured out a lot of things that go into making every game we make now." ■

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THE GROVE

KEY RELEASE

FACEWARE

The motion capture firm has held little back with its latest update to its eponymous facial performance suite, introducing new software, hardware, licences, languages and structuring

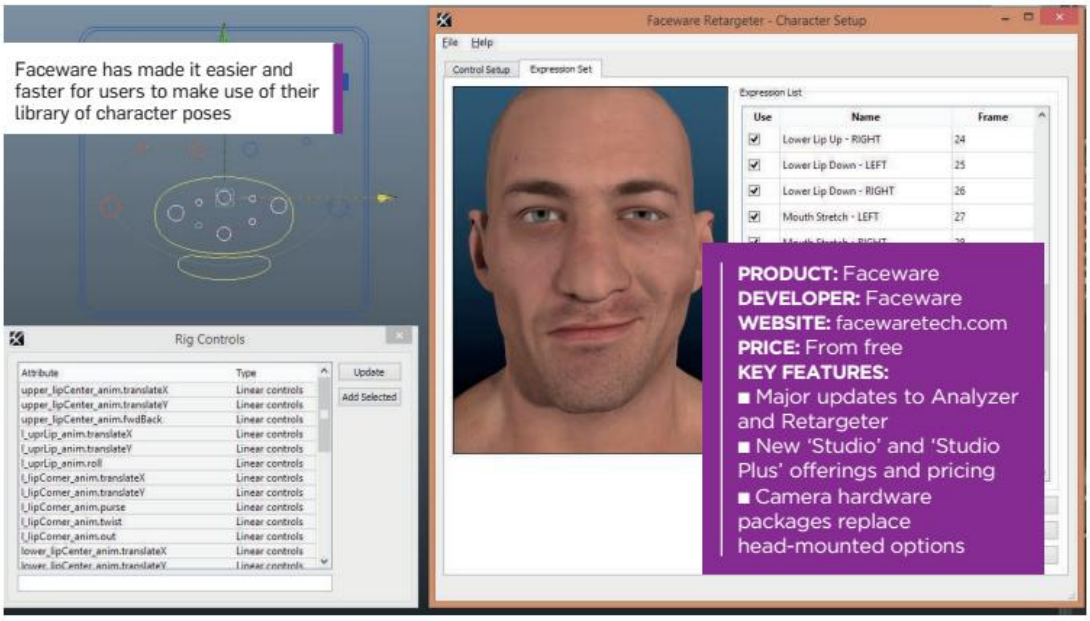
When Faceware Technologies' staff decided it was time to update their offering, a software tweak seasoned with feature corrections apparently wouldn't suffice.

The facial performance capture and animation outfit has, in a single sweep, released new versions of two core software options, introduced a duo of original hardware systems quite distinct from its established line-up and debuted a special edition of its technology for first-time users.

Collectively, the new products and customer options favour accessibility and workflow efficiency, though clearly not at the expense of Faceware's ability to serve high-end studios. The technology is currently in use in the rebooted *Doom*, new *Mirror's Edge*, upcoming *Mafia III* and high-profile expansion content like *Destiny: The Taken King*.

The reason that's possible, says Peter Busch, VP of business development at Faceware, is that democratising accessibility and high performance need not be mutually exclusive.

"Accessibility benefits everybody," he posits. "Even the most advanced user can benefit from a better experience where things are more efficient."



FORWARD FACING

At the heart of the Faceware updates are new versions of Analyzer, a markerless facial motion tracking software, and Retargeter: a plug-in for Autodesk products 3DS Max, Maya and MotionBuilder that maps capture data from Analyzer onto facial rigs.

> **Even the most advanced user can benefit from an experience where things are more efficient.**
> *Peter Busch, Faceware*

The 3.0 version of Analyzer introduces timecode support, the option to harness in/out point editing of new videos and, significantly, the ability to capture live video straight into the solutions workflow via Faceware's various hardware systems. There's also been a significant effort to localise the tool, with support for nine new languages.

Retargeter 5.0 benefits from the same localisation and timecode improvements, as well as enjoying a substantial boon to its approach to character posing and workflow.

"We made a lot of improvements to that workflow, so speed improvements that allow you to retarget simply from shared poses," Busch elaborates. "There's a library of character poses associated to one character. So users can basically load up a new shot and create animation from that library directly. Before we used that library in a different way that was a little slower and more cumbersome. This update will allow studios, as they work, to get much more efficient over time."

LICENCE TO ANIMATE

Beyond those software improvements, Faceware has reset the ways in which it offers its software. For one, gone are the traditional 'Light' and 'Pro' versions of the company's software, replaced by 'Studio' and 'Studio Plus' versions. The change, adds Busch, is in more than just name.

"Previously, Analyzer and Retargeter were available in Light and Pro versions, indicating that something 'pro' would have many more features," he confirms. "We wanted to make that Light version of the software a much better experience, so we added many features to the products, to the point where it really wasn't a 'light' or barebones version."

ON CAMERA

Faceware has also debuted two new hardware packages, each offering a combination of lights and camera, with both doing away with the head-mounted options that have long defined the company's technology.

Headcams will still be supported, but the GoPro Desktop System and Pro HD Tripod Camera System present studios with new options for their facial capture work, and come either as standalones, or bundled with the software as a turnkey solution.

In combination, Faceware hopes improved localisation, updated software, more diverse hardware options and new ways to use and pay for its technology will ultimately result in a broader diversity of studios embracing facial performance capture. ■

KING ART'S UNWRITTEN TALE

As the studio prepares to launch upcoming RPG The Dwarves, owner and creative director **Jan Theysen** reflects on how German developer King Art has evolved its technical prowess

Double Fine's *Broken Age* may have resurrected mainstream interest in point-and-click adventures in recent years, but a number of indie advocates had been working behind the scenes to keep the genre alive long before it returned to the front of the industry.

Among them is German studio King Art, which found universal acclaim in 2009 with traditional point-and-click title *The Book of Unwritten Tales*. A spin-off, *The Critter Chronicles*, followed in 2012, before King Art decided to launch a brand new franchise – and, with it, overhaul its tech.

"The first game we did in Unity, a crime adventure called *The Raven*, was a very big and ambitious project for the engine for the time," recalls creative director Jan Theysen.

"We had quite a few problems related to the project size, and the animation system back then was a nightmare. We had to come up with our own solutions for many problems – and then our solutions became obsolete because of Unity enhancements."

After a brief foray into the strategy genre with *Battle Worlds: Kronos*, King Art returned to the series that had made its fame, bringing *The Book of Unwritten Tales 2* to market last year.

"*The Book of Unwritten Tales 2* used tech from *The Raven*, but added tons of new stuff, especially in the animation field after the introduction of Mechanim," Theysen reveals.

"When it comes to tech and workflows we try to reuse as much as possible. But when it comes to the look and feel of a title, unit or character design, game mechanics, story and things like that, every game is unique. If something works great for multiple titles we might reuse it but, in general, we start with a blank page and try to figure out what might work best for a particular game."

2015's *The Book of Unwritten Tales 2* was built on tech from King Art's first Unity game, *The Raven*

PAY IT FORWARD

This year sees the debut of yet another new project from King Art: crowdfunded tactical RPG *The Dwarves*. Though it's another distinctive genre shift, the studio will once again be building on top of its existing technical foundation.

"*The Dwarves* uses *The Book of Unwritten Tales 2* tech and, again, we added new features and improved on old ones," Theysen observes. "This incremental enhancement of our technology and tools has and will be key for our games."

Like its tools, King Art's working methods have also been developed over the creation of each game.

"For *The Dwarves* we're using a physics-based shading workflow for the first time," Theysen details. "We're using Substance Designer and Substance Painter, together with our established zBrush/Maya pipeline. For our game logic we use kAPE, a proprietary state-chart engine we developed originally for the first *Book of Unwritten Tales*, ten years ago, and kept improving ever since.

> **Releasing on ten platforms wouldn't have been possible five years ago.**
> *Jan Theysen*

"We also use some other tools; for example, animations export from Maya. All animation events, like sounds, attachments/detachments, cameras, effects and so on, can be created by the animators. They are then imported into Unity. Without doing anything in Unity all the events are in place, which is a huge time saver."

MORE TO BE UNWRITTEN

Alongside its increasing technical ability, King Art's ambitions for its titles have also grown. Starting on PC, the developer subsequently expanded to console. It's also made the leap to mobile.

"We released *The Book of Unwritten Tales 2* on ten platforms," Theysen says. "That wouldn't have been possible only five years ago.

"The fact that three people were able to port the game from PC to nine other platforms in about five months speaks for the multi-platform capabilities of Unity. In fact, for many projects, things like controls, UI, the user experience on all the platforms and so on will be a bigger cause for headaches than the tech side."

With *The Dwarves* still in the midst of development, King Art is still learning – but Theysen is keen to see what the studio picks up for its next venture.

"I love to see how fast technology is evolving and be part of that," he enthuses. "It's an exciting, slightly scary and often surprising time to be a game developer." ■

HOW TO MAKE RACING CAR ENGINES ROAR USING **AUDIOMOTORS FMOD**

There's little more satisfying in a racing title than the realistic gurgle of an engine. AudioGaming CEO **Amaury La Burthe** puts the pedal to the metal in pursuit of procedurally-generated engine noise

Firelight Technologies and AudioGaming recently announced the integration of AudioMotors Fmod in the rally racing game *WRC5*. Embedded in Fmod Studio, AudioMotors creates real-life engine roaring sounds for improved audio immersion.

Here, AudioGaming's Amaury La Burthe runs through the steps you can take within Fmod Studio to implement AudioMotors within your racing game to take advantage of procedurally-generated engine noise. Then, he breaks down the differences between the traditional method of creating engine sound audio and adopting a procedural approach. ■

AUDIOMOTORS FMOD QUICK START QUIDE

Step 1: Create a new event

Step 2: Add AudioMotors plugin

Step 3: Adjust the event duration for AudioMotors

Step 4: Try automation

Step 5: Play with automation

THIS MONTH'S TUTOR

Name: Amaury La Burthe
Role: CEO
Company: AudioGaming
Bio: A former researcher for Sony and audio designer for Ubisoft, La Burthe holds a thorough understanding of both the scientific and artistic aspects of sound design in interactive media.

TRADITIONAL METHOD: ENGINE SOUND LOOP EDITING

The traditional approach to engine sound design is based on several engine sound loops of fixed RPM. Sound designers usually spend hours of editing work to find loop points for best crossfade and to fine-tune pitch-shifting for best RPM transitions.

Downsides:

- Loop editing is time-consuming
- Compromised quality due to pitch-shifting: since the CPU resource is limited on game consoles, the real-time pitch-shifting algorithm is usually simplified. Therefore, quite a few recordings of fixed RPM loops are necessary to achieve high quality results.

PROCEDURAL METHOD: ENGINE SOUND SYNTHESIS

Contrary to tedious loop editing work, a more procedural approach is to synthesise engine sounds based on additive synthesis or granular synthesis.

Additive synthesis models the engine sound signal by sinusoids (harmonics) and residuals (noise). It is the Holy Grail of procedural engine sound synthesis, but it remains a challenging task to re-produce the complex modulation behaviors which characterise realistic engine sound quality.

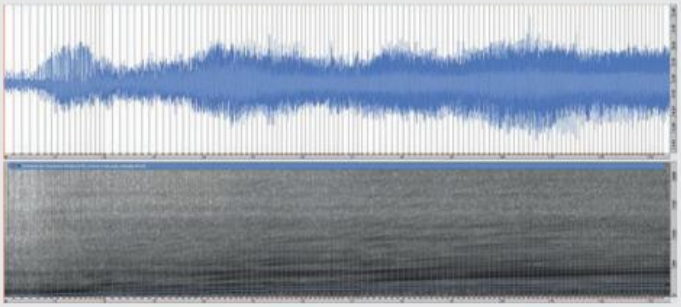
Downsides:

- Hard to model complex modulation behavior
- Computationally demanding in real-time synthesis

Granular synthesis is a more practical approach because it makes use of snippets of a sound recording and thus inherits/preserves the short-time signal's timbre. Given an engine recording revving up/down, one can analyse the underlying grains representing each engine firing cycle and then concatenate these grains in real-time.

Advantages:

- Inherits the timbre of realistic engine sounds
- Gain positions automatically detected
- Computationally efficient in real-time synthesis: a strong advantage of granular synthesis is that the complex analysis is done offline and the synthesis is very efficient in real-time. This frees sound designers from tedious loop editing work because the engine cycle positions (best crossfade points) are automatically detected by the analysis algorithm.

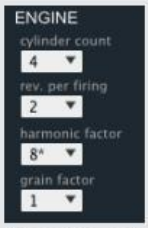


A good analysis provides precise grain positions synchronous to pitch (RPM)

AUDIOMOTORS AUTHORING TOOLS

AudioMotors' granular engine reproduces engine cycle in a pitch-synchronous manner. The analysis stage is manipulated offline using the provided authoring tool such that game audio engine is only responsible for real-time synthesis.

AudioMotors Authoring Tool



Engine information settings

AudioMotors provides engine spec settings for the best analysis and synthesis results. If you know the engine type in advance, you can refer to automobile manufacturers for the cylinder count and the number of revolutions per firing event. There are also handy parameters such as harmonic factor, grain factor and randomisation for efficiently fine-tuning the quality.

RPM control

Drive control simulates engine load on/off

The control of synthesis is intuitive; namely, the engine RPM, that – just like driving a car – can be directly influenced by the physics working upon the vehicle. By using multiple instances for different miking positions, the switching of perspectives can be efficiently carried out.

AudioMotors also allows simulating engine load effects during acceleration/deceleration and gear changing for upshifting/downshifting.

A unique mode has also been developed for tyre-rolling sounds, which allows scratching the recording like a DJ for synthesising texture sounds with coherent timbre and seamless transitions.

AudioMotors Authoring Tools for game audio includes a special DAW plugin version and a command line tool. It is meant for preparing the Car Data, which can be loaded and used in runtime.

Export Car Data using Audiomotors Authoring Tools

The DAW plugin version has an Export button which exports the data necessary for runtime synthesis. The command line tool has not only the functionalities of the DAW plugin version but also advanced functionalities such as importing/exporting analysis results (Sound Description Interchangeable Format (SDIF)-compatible) for further manual correction. It is also a powerful tool for batch processing.

CONCLUSION

Sound designers can simply drag and drop the Car Data exported by AudioMotors Authoring Tools to start designing the events. The main control RPM will get inputs from the game engine and thus synchronising multiple instances is completely straightforward.

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'DEVELOP ON PC FIRST AND **MOVE TO MOBILE WHEN YOU ARE READY**'

Nomad Games MD **Don Whiteford** retraces the studio's journey from PC to mobile when bringing Warhammer 40,000 board game Talisman: The Horus Heresy to the virtual world

While it may seem like finding a completely original concept is the trickiest challenge faced by devs, adapting an existing property can often be just as complicated – and working with two IPs simultaneously, more so.

That was the task faced by Nomad Games when it opted to create a digital version of Games Workshop's fantasy tabletop game *Talisman*, set in the Warhammer 40,000 universe.

The first major decision for the team was selecting a technical foundation for *Talisman: The Horus Heresy* that could manage Warhammer 40,000's gritty sci-fi aesthetic and the complexity of *Talisman*'s mechanics without breaking the bank, and allow Nomad to support the title long into the future.

"We made a thorough evaluation of the well-known engines," recalls MD Don Whiteford. "The solution had to be cost-effective over the long term, since we support all our products continuously. It would have to match the team's existing skillset if possible, to maximise productivity – this made us aim for the C++ oriented engines.

"Our previous experience of console development made us want to use a 'thin' API if possible – larger heavyweight engines tend to be slower to learn, slower to build, harder to optimise and harder to work around when bugs emerge. A good engine also has good customer support. Marmalade fits all these requirements, and provides a wide range of target platforms."

Nomad implemented a custom UI system and data tool chain to allow *Talisman: The Horus Heresy* to run on both PC and mobile

A QUESTION OF QUALITY

Nomad launched *The Horus Heresy* on PC, taking advantage of the platform's power to push visual fidelity.

"The desktop version is surprisingly graphically intensive, with many layers of alpha and particle effects being used to make up the planets and nebulae," Whiteford details.

The title also came to iOS and Android, requiring Nomad to scale the virtual board game's appearance down to a mobile-friendly format and maintain optimal performance.

> **Larger engines tend to be slower to learn, slower to build, harder to optimise and harder to work around when bugs emerge.**
> *Don Whiteford*

"Marmalade makes it easy for us to scale this downwards to target even low-end phones and laptops," Whiteford continues. "Low-level access to the rendering API is essential to get the best out of any device; Marmalade ships with a comprehensive metrics system to help pinpoint and fix bottlenecks, and tune draw-calls and memory usage. These optimisations benefit all our platforms, since Marmalade runs on GL on every device."

This presented a number of challenges, with Whiteford and his team taking advantage of the ability to access Marmalade's source code to adapt the engine to their needs.

"We had to make the game run well on everything from a 30-inch 4K monitor to a 1024x600 phone," he explains. "The memory used by the game varies from 500MB-plus on PC to 50MB on Android. We had to implement our own UI system and data tool chain to address these issues, which was quite tricky. The guys at Marmalade are starting to address this themselves, with the recent release of their 2D Kit editor and runtime."

PC POWER

While *The Horus Heresy* marked Nomad's first venture into the Warhammer 40,000 universe, the studio already had experience with the *Talisman* IP, having adapted the original fantasy board game for mobile and PC as *Talisman Prologue* in 2013.

"We were one of the first, if not the first, to use Marmalade for developing a PC game," Whiteford says.

"One of the best things about Marmalade is that it makes it easy to deploy to different platforms. Being able to develop on PC for all the different platforms is a great advantage."

Whiteford advises devs looking to make a similar transition to begin with the platform they are already well-acquainted with.

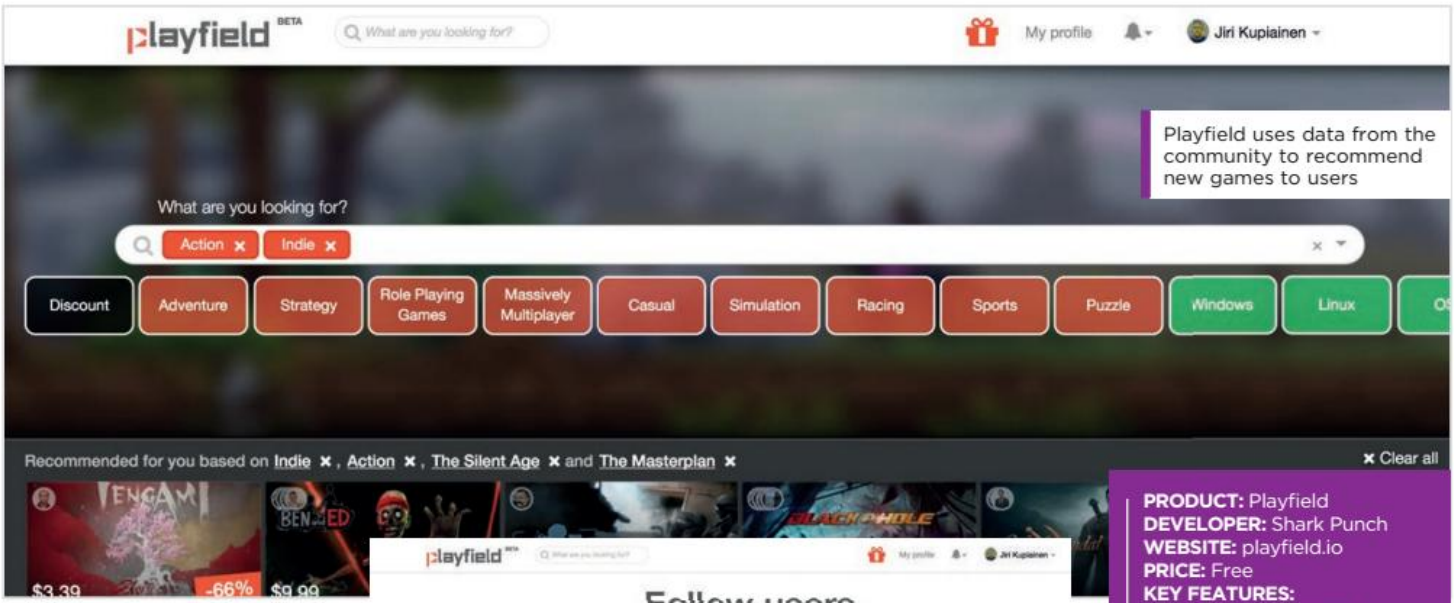
"Develop on PC first and move to mobile when you are ready," he encourages. "The environment of PC, the access to users and ease of turnaround helps you get to the end result faster." ■

WHY MARMALADE MATTERS
Marmalade's metrics system, universal OpenGL ES support and low-level access allowed Nomad to scale *Talisman: The Horus Heresy* across both PC and mobile without compromising on quality.
www.madewithmarmalade.com

TOOLS SPOTLIGHT

PLAYFIELD

Getting your game noticed is harder than ever, but Shark Punch is working on a solution with what it hopes will become a 'TripAdvisor for games': Playfield. CEO Jiri Kupiainen talks about taking on Steam



PRODUCT: Playfield
DEVELOPER: Shark Punch
WEBSITE: playfield.io
PRICE: Free
KEY FEATURES:

- Information and media about a game collated from multiple sites across the internet and displayed on a single page
- Suitable for both big and small studios, with 2,000 titles currently listed
- Free to register and create a game page, regardless of development stage or platform
- Social features planned for the future to help foster communities

For more than a decade, Steam has served as the go-to platform for distribution on PC. With its huge audience, it's also one of the best ways to get your game noticed – capturing even a fraction of its 125 million users can propel a title to major success.

But the marketplace isn't perfect. With such a proliferation of software, it remains a serious struggle for smaller studios to get their work noticed.

In steps newcomer platform Playfield, which hopes to make discoverability and community-building easier for devs overwhelmed by Steam's scale.

"Playfield is a way for people who care about games to discover games and content relevant to them every day," explains Jiri Kupiainen, CEO of creator Shark Punch. "In some ways it's a better Steam; in other ways, it's more like TripAdvisor for games."

He explains that the difference between Playfield and its rivals is a focus on providing users with curated suggestions as to what they should play next, and then allowing them to stay up-to-date with the latest news from their favourite titles from across the web.

"Steam and GOG are silos," Kupiainen observes. "Playfield is more of a hub.

"We automatically pull in content from all over the internet – so game pages will show things like interesting Let's Plays from YouTube and screenshots tweeted by users, instead of just the usual publisher-provided screenshots.

> **Steam and GOG are silos. Playfield is more of a hub.**
> *Jiri Kupiainen, Shark Punch*

"Our recommendations take your social graph and community signals into account, which allows us to come up with more interesting and relevant suggestions on what to play next."

SHARING THE SPOTLIGHT

Although Playfield may not yet boast the expansive library of platforms such as Steam, Kupiainen says that it is quickly being populated by developers of all shapes and sizes.

"Around a thousand developers and publishers are already signed up, and we have close to 2,000 games on the platform," he reveals.

"This ranges from very small indie studios through bigger ones, like Bossa and Remedy, all the way to big publishers like 2K."

Because Playfield is, at heart, a store, it doesn't cost developers a penny to sign up. Simply being on the platform means you could end up becoming the next viral hit, as every week the Playfield community selects a title to highlight on the service's front page – games chosen cannot be selected again for four weeks, encouraging variety in the picks.

"Any game can have a page on Playfield for free, regardless of the platform or development stage," Kupiainen reaffirms. "There's some light contract work to be signed if you want to also sell the game, but it's all very straightforward."

Playfield saw a full-bodied launch at the end of April, following a period of beta testing. Kupiainen outlines the future plan for the ambitious platform.

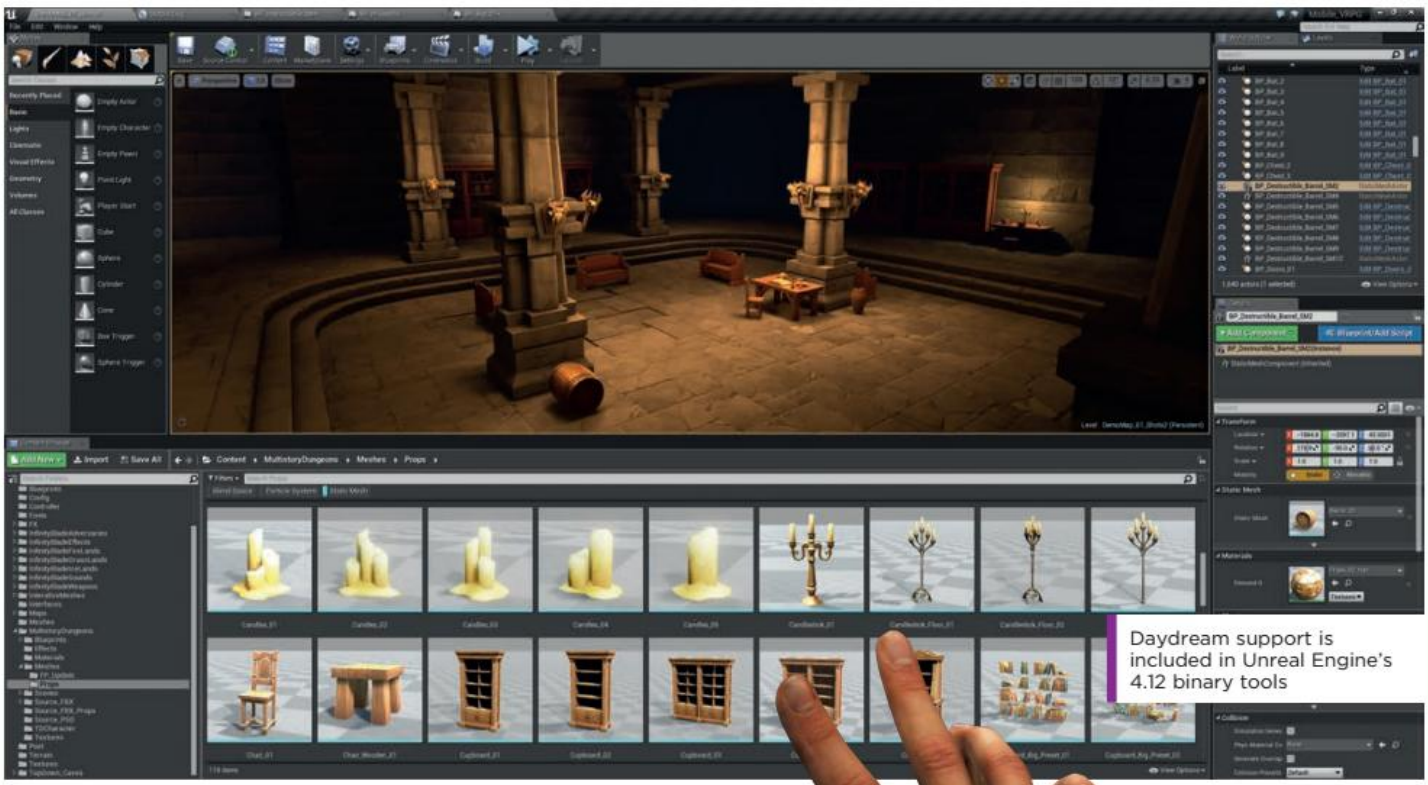
"We recently shipped a couple of massive updates," he recalls.

"We're also launching improved game pages to really complement the content aggregation feature.

"After that, focus is on making the site a better daily destination for users – it should be easy to enjoy gaming culture every day, regardless of whether you're planning to buy a new game today or not." ■

VR FOR THE MASSES

With Unreal Engine support for Google's Daydream platform, mobile VR is ready to reach all-new heights



Daydream support is included in Unreal Engine's 4.12 binary tools

For years, VR for consumers was a distant dream. As the technical capabilities of modern hardware and software have flourished to offer a more accessible approach to VR, it is apparent that these once lofty ambitions are becoming a reality.

Google's new Daydream platform not only solidifies the substance of virtual reality as a medium, but extends its reach farther and faster than anyone might have thought.

Announced during the recent Google I/O event, Daydream opens doors for high-quality VR experiences on mobile devices, due in part to the new Android VR Mode, which enables a slew of new phones shipping this fall to support high-performance mobile VR features built on top of Android N.

In addition, every single Daydream headset ships with an intuitive, responsive controller that enhances experiences in rich, interactive environments.

What this means is that developers have more opportunities than ever to put meaningful VR experiences into the hands of millions of people by the end of the year. Ironically, the days of dreaming about VR are just about over.

MORE THAN A DREAM

Developers having the means to create content for Daydream is essential to not only the platform's success, but the ongoing success of the VR ecosystem. That's why Epic Games CTO Kim Libreri took to the stage at Google I/O to announce Unreal Engine support for Daydream.

He then revealed a new sample game that Epic Games principal artist Shane Caudle made by himself for Daydream within the span of two weeks.

Libreri observed that natural input made for VR is hugely important in making people believe they have been transported to another place, and nothing beats the immersive qualities of incorporating motion controls into VR.

Nick Whiting, Epic Games' technical director of VR and AR, elaborated on the Daydream controller, a major advancement for crafting gameplay mechanics and exploration for mobile VR.

"Once you've interacted with motion controllers, it's hard to go back," he said. "You see the magic of being in-game, but the illusion is broken if you don't have hands."

> **The magic of VR is broken if you don't have hands.**
> *Nick Whiting, Epic Games*

With a variety of platforms that support a range of input methods and technical depth, developers looking to create content for VR are limited only by their imaginations.

"Almost everyone can wave their hands around and use a trackpad," Whiting explained. "It's very simple, so it's hard to do something wrong."

Best of all, those wishing to dive in now don't have to wait. Unreal Engine 4 support for Daydream is available through GitHub, which brings live code updates to the community on a daily basis, and Daydream support is also in the Unreal Engine 4.12 binary tools.

While the world of virtual reality is moving at a breakneck pace, it's moments like these that are worth dreaming about. ■

ASK AMIQUS

Q I want to apply for a role at another studio that could be viewed as a rival, but I'm worried I'll be blacklisted by my boss if they find out. How do I broach the subject with them?

Although this might sound like a tricky situation, with careful handling it needn't be. It's normal to feel loyalty to your studio and, as with any career move, it needs lots of thought.

If you decide to go for it, first of all check your current employment contract for restrictions or non-compete clauses. Constraints are usually date-bound, but if you feel there are clauses that appear to stop you ever getting another job in games, you could look into whether these restrictions are enforceable. The worst-case scenario is that you have to wait a while before you can move to a direct competitor.

Whether or not this is an option for you depends on individual circumstances such as your financial position or the flexibility of your current or prospective employer. In all cases, you must be respectful of any NDAs around IP when sharing your portfolio or discussing the work practices of your studio.

If all's clear, you can make a start. Try to remain confident in your freedom to make this decision; moving to a competitor is not so shocking when you apply a bit of logic. Unless you are looking for a total career change, it makes sense to move to an employer within your existing field of expertise. Any job move carries a few risks but you can make sure all your job-hunting activity is in your own spare or holiday time and continue to give your current employer your full attention. It's unfair to be paid for doing a job if all your focus is on leaving it.

HANDING IN YOUR NOTICE

You don't have to tell your boss in advance that you are going to apply to a rival, but if you have a good relationship you may want to.

> Don't forget the golden rule: never bad-mouth an ex-employer to anyone.

Leaving the conversation too late could create resentment.

Whenever you chose to speak to them, it's important to keep an open mind, allow them some time to react and then listen to their response. If your boss points out something you might not have thought of, remember it's not weak to reconsider, so try to have as open a discussion as you can.

If you do decide to resign, prepare yourself for the meeting. It may not be realistic for your boss to be happy with the situation, so your goal is that they are accepting of your decision and comfortable that you have respected your current work duties. What is super important is that they find out where you are going from you and nowhere else – including social media. Your boss will find out sooner or later and you will leave a much better impression of yourself if you're upfront.

By going to a rival, you are going to give your employer a problem: the loss of your skills and the prospect of you taking them to a competitor. This is not a nice feeling, but if you have decided to go ahead then it's one you must accept. Most employment relationships aren't expected to last forever and people moving jobs is just a fact of life.

Whatever the response try not to take it personally; be empathetic and make every effort not to burn your bridges. This is where calmness and confidence in your decision comes in, while keeping emotions in check. Be prepared that if your boss believes there is a conflict of interest, you may be asked to leave site but remain employed to the end of your notice period or agreed leave date, so don't be all over Facebook about your new job just yet.

However your resignation has gone, don't forget the golden rule: never bad-mouth an ex-employer to anyone. Negativity actually gives a bad impression of you rather than them.

The key question at the heart of this is whether going to a competitor is the right move for you. It can be tough to put yourself first but the only person responsible for your career is you. ■

Liz Prince is business manager at Amiqus. Every month, she helps solve some of the trickier problems job seekers currently face in the games industry

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